VOL. 173, NO. 2 AMERICAN AUGUST 195

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Gas Journal

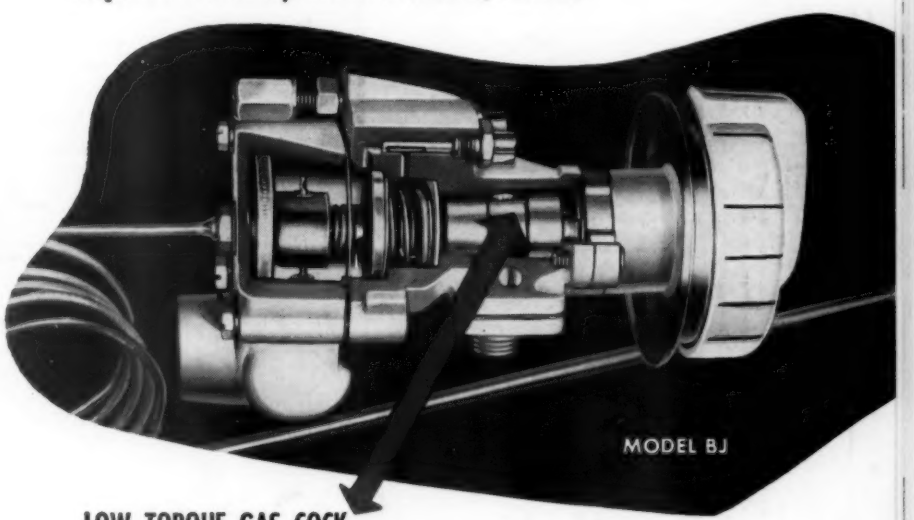
THE LIBRARY OF CONGRESS SERIAL RECORD SEP 12 1950

There is no Substitute for Experience

Behind the Model BJ Thermostat stands the vast experience gained by producing nearly 12,000,000 units which have successfully met the test of service on America's outstanding gas ranges.

This experience—unmatched within the industry—has helped to develop an instrument which is sensitive and precise, yet at the same time exceptionally rugged and long-lasting.

Our fifty years' experience in manufacturing heat controls is also responsible for many exclusive features, such as—



LOW TORQUE GAS COCK

The plug and seat of the gas cock are made of a special aluminum alloy. This metal is particularly suitable for the purpose, because it produces an action that is free from sticking. The valve is free-turning under both high and low temperatures. The metal is not affected by sulphurous gases. The all-aluminum valve cavity will resist the effects of corrosive gases indefinitely.

In Home and Industry, EVERYTHING'S UNDER CONTROL

Robertshaw-Fulton

Controls Company—Greensburg, Pennsylvania

Robertshaw Thermostat Division, Youngwood, Pennsylvania • Grayson Controls Division, Lynwood, California • Fulton Sylphon Division, Knoxville, Tennessee • American Thermometer Division, St. Louis, Missouri • Bridgeport Thermostat Division, Bridgeport, Connecticut

Projects and Equipment for

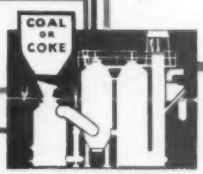
GAS PLANTS

RECENT REFERENCES

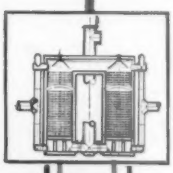
- **A** 6,000,000 CFD MILANO
- **C** 1,300,000 CFD VENICE
- **F** MILANO, VENICE
- **G** MILANO
- **H** MILANO, VENICE
- **I** ROME (3), TORINO (2), FLORENCE (3), MILANO (2) 80,000,000 CFD
- **J** MILANO
- **L** ROME (5) TORINO (4), MILANO (6) 8,000 H P
- **N** MILANO
- **O** CAEN, VIERZON, CHAMBERY, LIMOGES (FRANCE) SAN REMO, MILANO (3), VENICE (ITALY)

North American Utility & Construction Corp.
North American Petroleum Gas Corp.
405 Lexington Avenue New York 17, N. Y.

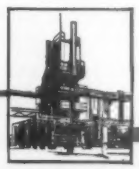
GAS GENERATORS



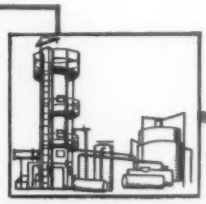
A CARBURETTED WATER GAS (Air and Steam)



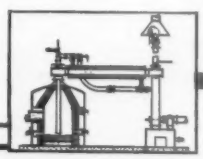
B OIL GAS (Air and Steam)



C CATALYTICAL REFORMING (Steam)



D HIGH TEMPERATURE REFORMING WITH CATALYST (Air and Steam)



E REFORMING WITH AIR OR OXYGEN

FOUL GAS

FOR REFORMING OR ENRICHING

NATURAL GAS, REFINERY GAS, PROPANE, BUTANE

GAS OIL

HEAVY OIL

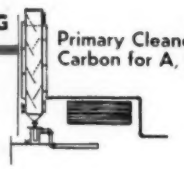
FUELS

AUXILIARIES

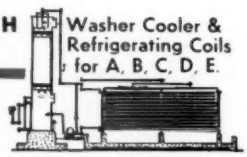
F Waste Heat Boiler for A, B, C, D, & Steam Accumulator

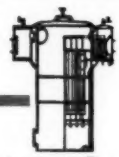
PURIFICATION

G Primary Cleaner of Carbon for A, B.



H Washer Cooler & Refrigerating Coils for A, B, C, D, E.

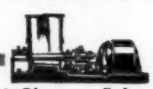




I Electrostatic Tar Precipitator for A, B, E.

J Naphthalene Scrubber for A, B, E.

K Relief Holder for A, B.



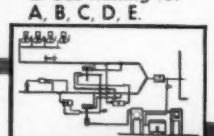
PURIFIED GAS

L Air Blowers, Exhausters, Compressors for A, B, C, D, E.

M Sulphur Purifier for A, B.

N Tar Separator for A, B.

O Automatic Enriching & Gas Mixing for A, B, C, D, E.



Enriching to Desired Heat Content

FROM FUELS — TO — FINAL GAS

Form 50502

SEP -5 1950

Now Hot News in ZONE-CONTROLLED Gas Heat...

STEWART-WARNER "Safety Sealed" HEATING UNITS!

CHECK THESE SELLING FEATURES!

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AMERICAN Gas Journal

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NEW YORK 17, N. Y.

atile is the word for Stewart-Warner's new developments in zone-controlled gas heating! With multiple installations, safe, reliable heat d for any hard-to-heat room, any remote for an entire building.

ew "Safety-Sealed" Saf-Aire model, for , is a completely independent, automatic gas heating system. Every room or zone is heated to its individual requirements with convenience, comfort and economy *unattainable* with conventional-type central heating plants.

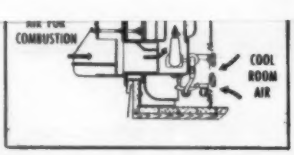
Exclusive "Safety-Sealed" construction *seals* all combustion air and products from contact with heated room air. The patented exterior wall vent draws in *outside* air for combustion, then vents all combustion products outside.

Easy to install in any exterior wall, this "packaged" heating unit needs no chimney, ducts *or electricity!* Only one utility connection is required —the gas line. No basement, closet or floor space is wasted.

Available in Ivory, Beige or Aluminum finish with manual or thermostat control. Saf-Aire operates with complete silence on natural, manufactured or LP gas.

a single moving part.

Model 991-14 14,000 BTU/HR 18" x 24" x 4"
Model 992-20 20,000 BTU/HR 18"x 38½"x 4"



Quick, Easy Installation

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WRITE NOW for free information, specifications and performance data on the complete line of Stewart-Warner "Safety-Sealed" Gas Heating Units. Address inquiries to 1517 Drover Street, Indianapolis 7, Indiana.

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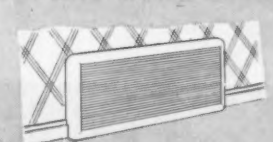

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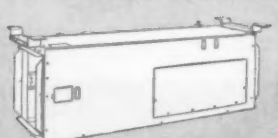
Easily installed in any inside or outside wall. Two suitcase-size units heat average home. Automatically modulated forced-air heat. Thermostat control.



SOUTH WIND ZONE FURNACE
Compact, forced-air unit. Easily tucked away under the floor, in a closet or any convenient space. Short ducts from centralized installation. Thermostatic control.

Approved by American Gas Association

STEWART Safety Sealed WARNER
DOMESTIC HEATING

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AUXILIARIES

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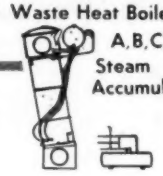

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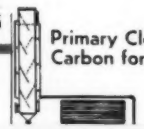

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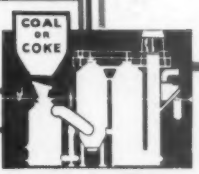

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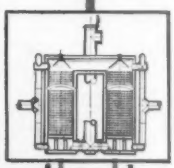

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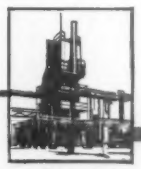

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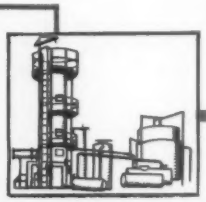

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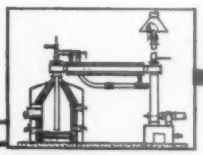

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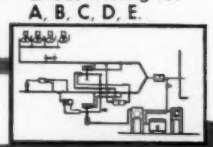

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CHECK THESE SELLING FEATURES!

- Small, compact units applicable to one room, a suite of rooms or an entire building!
- All combustion products vented directly through a small, exterior wall vent!
- No room air is used for combustion!
- Dependable, low-cost zone-heating with manual or thermostat control!
- Easily recessed into walls of wood, brick, plaster, stucco or cement-block construction!
- Input ratings from 13,000 BTUs per hour to 31,000 BTUs per hour!

Exclusive "Safety-Sealed" Design

positively seals all products of combustion from contact with heated room air. The "Safety-Sealed" exterior vent draws all combustion air from outdoors. Vents all combustion products outside without a single moving part.

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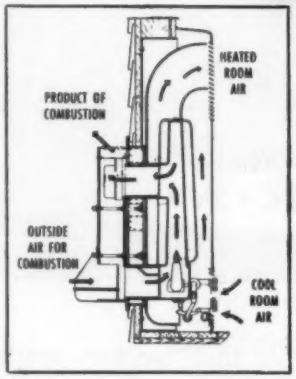

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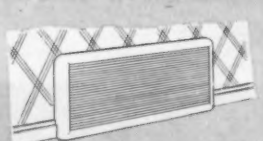

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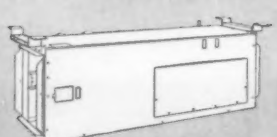

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Without crushing strength—or, for that matter—without all of the strength factors listed opposite—no pipe laid 100 years ago in *city streets* would be in service today. But, in spite of the evolution of traffic from horse-drawn vehicles to heavy trucks and buses—and today's vast complexity of subway and underground utility services—cast iron gas and water mains, laid over a century ago, are serving in the streets of more than 30 cities in the United States and Canada. Such service records prove that cast iron pipe combines all the strength factors of long life with ample margins of safety. No pipe that is provably deficient in any of these strength factors should ever be laid in city streets. Cast Iron Pipe Research Association, Thos. F. Wolfe, Engineer, 122 So. Michigan Ave., Chicago 3.

CAST IRON PIPE

Strength factors of Long Life !

No pipe that is provably deficient in any of these strength factors should ever be laid in city streets

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

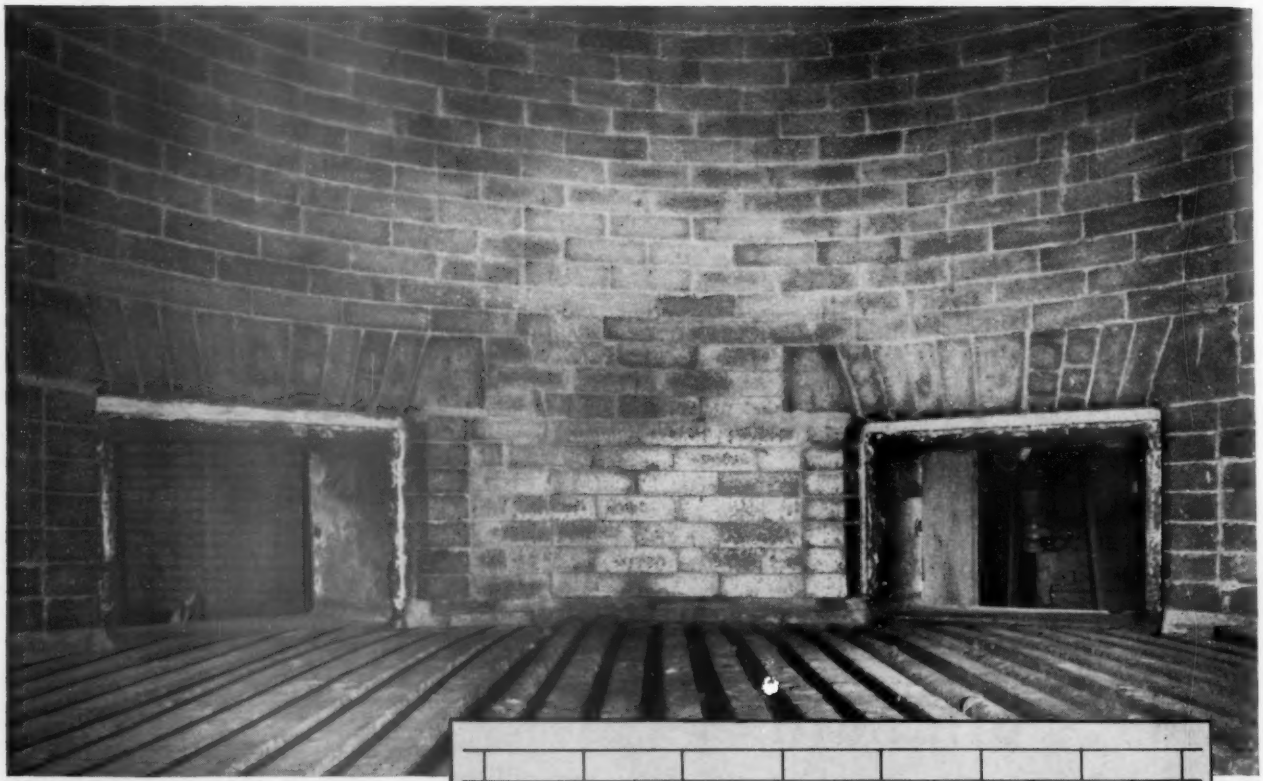
SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

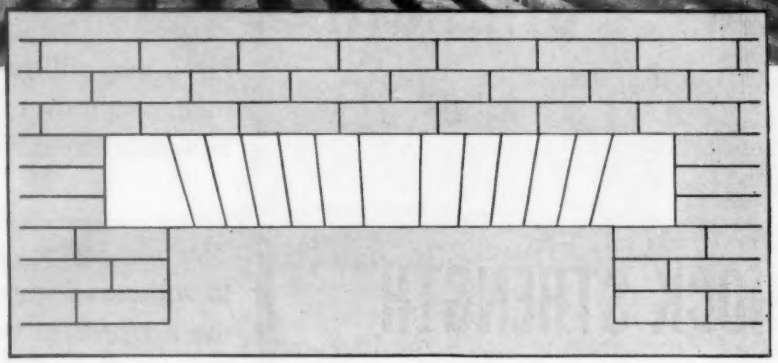
In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

SERVES FOR CENTURIES



TYPICAL WATER GAS GENERATOR lined with Norton Crystolon* silicon carbide shapes has a life expectancy of at least 10,000 hours without major repairs.

THIRTEEN DIFFERENT ARCH SHAPES of special Norton design are made of Norton Crystolon silicon carbide refractory to add extra life to this typical generator door.



This gas generator has 3 lives!

If you are now using fire clay brick to line your generators, you, too, can multiply your lining's life by three. With fire clay, you can expect approximately 3500 hours without major repairs. With Norton Crystolon silicon carbide linings, many operators are reporting in excess of 15,000 hours.

That's to be expected. Crystolon brick is so dense and hard that slag can't penetrate. When the clinker ring is broken, it just falls free. No roughened surface left on the brick to cause increased slag adherence! No spalling of the wall!

Less Down-Time . . . More Production!

Crystolon shapes are so quick and easy to clean, you not only reduce down-time and cleaning costs but also maintain a larger effective furnace cross-section for maximum production.

Get All The Facts!

A new, free booklet, "Relining and Repairing Gas Generators," is yours for the asking. Contact your local Norton representative, or write direct for Bulletin R. G. 22. NORTON COMPANY, 700 New Bond Street, Worcester 6, Mass.

*Trade-Mark Reg. U. S. Pat. Off. and Foreign Countries

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TRADE MARK REG. U. S. PAT. OFF.

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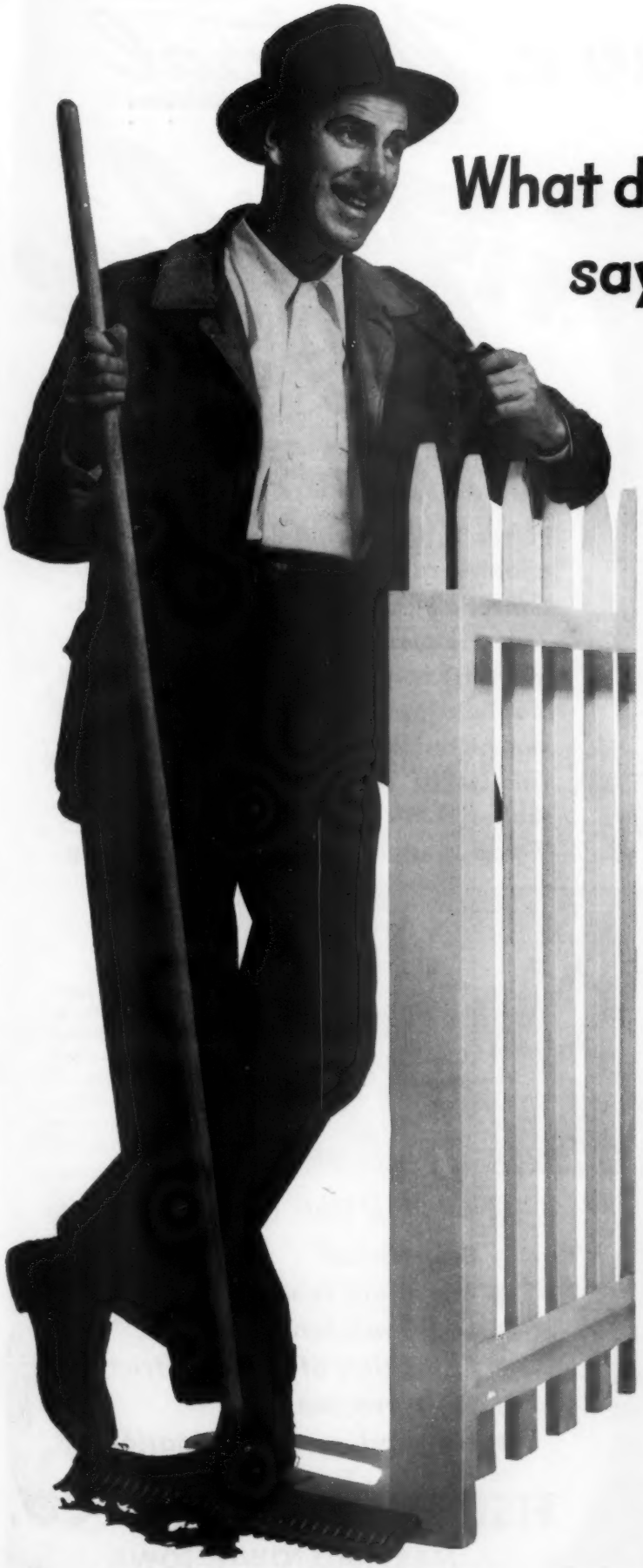
A. P. GREEN FIRE BRICK CO., Ltd. TORONTO, ONTARIO



What do the back fences say about you?

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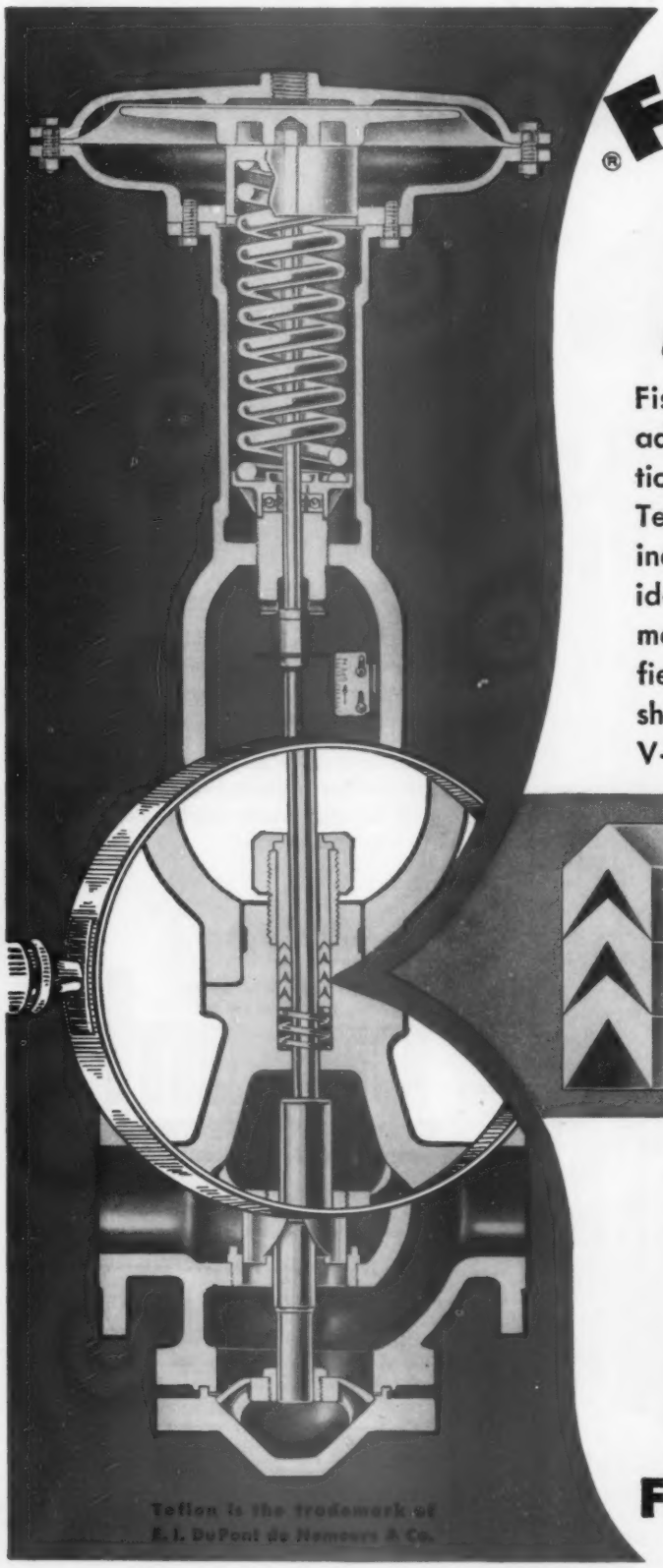

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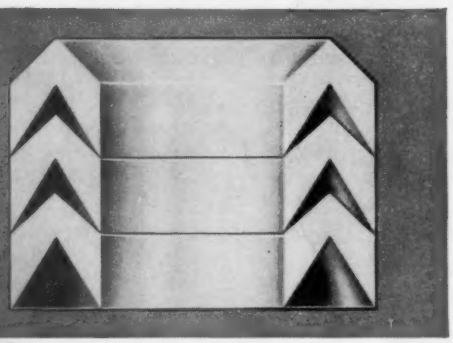

Fisher Teflon packing cut in section to show V-ring construction.

Advantages of Fisher Teflon V-ring packing:

- ***Economical***
- ***Minimum leakage***
- ***Low maintenance***
- ***Reduction of packing friction***
- ***No corrosion***
- ***No product contamination***

FISHER GOVERNOR CO.

MARSHALLTOWN, IOWA

AMERICAN Gas Journal
ESTABLISHED 1859

VOLUME 173 AUGUST 1950 NUMBER 2

This month...

Trading a little heavily at times on our 91 year background, we have sometimes come to feel that we had an exclusive right to historical ruminations on the gas industry. This month we find ourselves effectively challenged in this field by the Fiftieth Anniversary Edition of the *Philadelphia Gas Works News*. Editor E. M. Miller has turned out a masterpiece of company chronology, from 1900 to the present day, enlivened with photographs, ancient and modern, and recording the highlights in the first half century of Philadelphia Gas Works' progress.

Readers who are attentive to details and low enough in the business world to have to open their own mail, will observe that the JOURNAL is once more being enclosed in an envelope instead of a wrapper. Judging from the occasional copies returned as undeliverable, we came to the conclusion that the wrapper enclosed magazine must have been reaching our subscribers in a more or less battered condition. We picture our average reader as a clean cut meticulous gentleman who would no more read a dog-eared publication than he would eat breakfast with his coat off. We trust the change meets with his dignified approval.

A bothersome agency set up to harass hell out of publishers and also to keep them honest is the Audit Bureau of Circulations. In preparing our statement for the current showdown, or audit as it is professionally described, we learned to our gratification that paid circulation since the previous one is up in the neighborhood of 25 per cent, and renewals have increased from the former average of 71 per cent to 77 per cent. There is nothing as convincing as cold figures—when they are favorable. We modestly read these as a measure of endorsement of our endeavors to date.

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Elliott Taylor · Editor

Howard F. Weeks · Associate Editor

Arthur Rohman · Western Editor **John F. Falvey · Financial Editor**

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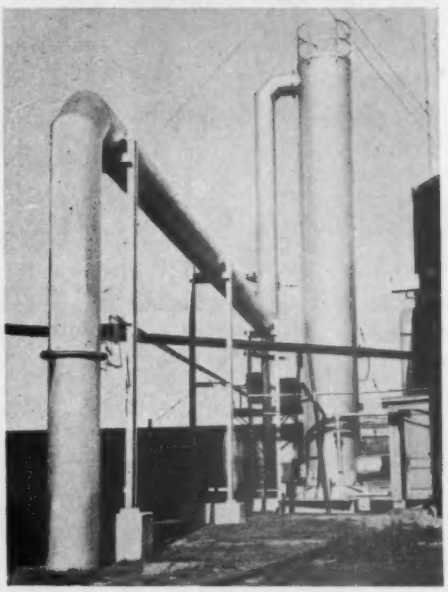
ASHTABULA STAR-BEACON
To Disperse Truth Is to Defend Freedom
Here's Why Ashtabula Burns Gas, Rest of Area Doesn't
GAS PARLEY CONTINU

These pictures show why 13,000 consumers of the Lake Shore Gas Company in Ashtabula, Ohio, were able to continue using "coke oven" gas during a recent period of several weeks.



Reforming equipment manufactured by The Gas Machinery Company had been installed in anticipation of the town's growth, to take care of peak demands and short-time emergencies. This emergency grew into weeks, yet service continued throughout the entire period.

In the installation pictured, LP vapors were reformed in a blue gas generator, cooled in a spray scrubber, and enriched to the standard heating value of the coke oven gas normally distributed.

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Editorial:

Field Price Regulation

THE Federal Power Commission lost no time in interpreting the presidential veto of the Kerr bill as an authorization to proceed with its program of bringing independent producers under the jurisdiction of the commission. The first step was the formal rescinding of its Order 139, issued August 7, 1947, in which the commission then agreed not to assert jurisdiction over independent producers and gatherers.

Order 139 was originally issued to set at rest the confusion that existed in the minds of oil and gas producers, and state regulatory and conservation bodies with respect to how far the FPC would attempt to go in regulating prices paid for gas in the field. In the commission's words at the time, it was "designed to relieve any uncertainty regarding the commission's position that it would not seek to assert jurisdiction over the sale of natural gas to interstate pipe lines by independent producers and gatherers."

In a press announcement accompanying the rescinding of Order 139, the FPC stated: "it is not the intention of the commission to inaugurate a general investigation respecting existing rates charged by producers and gatherers. . . . Upon the conclusion of further studies . . . the commission plans to promulgate rules and regulations specifically applicable to them."

This is interesting for the record, because it is the ultimate in a chain of specious reasoning whereby Congressional intent, as written into the Natural Gas Act in Section 1(b)—"The provisions of this act . . . *shall not* apply to . . . the production and gathering of natural gas" —has been contorted to mean that the provisions of the act *shall* apply to production and gathering, wherever and whenever the FPC wills it to do so.

Panic Buyers

THE ominous and very imminent prospect that we will resume the war that has been in uneasy armistice since August 1945 has already had its first effect in the wave of panic buying that has swept the country. To date this has been most noticeable in retail items where previous shortages are still fresh in the public memory. Sugar and nylon stockings have captured the headlines. Official reassurances that the supplies on hand are more than adequate for any normal demand have in a measure curbed the first rush to amass and hoard. Whether rationing can be forestalled or avoided will depend in the long run on whether or not the buying public exercises the decent restraint that it is now being asked to observe.

But it is not in the retail field alone that the fear of impending shortages has been reflected in a flood of orders. Gas appliance manufacturers, some of whom were confronting uncomfortably large inventories as recently as six weeks ago, suddenly find themselves sold out for the balance of this year's production. Many of the new rush of orders are, of course, a legitimate reflection of consumer demand, but there is undoubtedly an element in the gas appliance industry that wants to buy now for inventory, in anticipation of shortages, higher prices and the resulting excess profits to themselves.

Manufacturers of appliances and equipment have both the right and the obligation to keep a firm hand on the distribution of their stocks and their production during the uncertain period that lies ahead. Whether or not such measures can forestall shortages in the long run remains to be seen. But if nothing more is accomplished than thwarting the insensate greed of those who would fatten themselves on a national calamity, it will be worth it.

The Time Is Now

A RECENT communication from Gas Appliance Manufacturers Association headquarters invited comment on President Hobson's proposal that that organization undertake a campaign of publicity under its own sponsorship.

The original suggestion envisioned a campaign built around gas and product publicity. It is probable that our rapid retrogression into a war economy will render such an endeavor untimely and inadvisable for the immediate future.

There is, however, a greater publicity and public relations need at GAMA, and that is for a campaign elevated to the institutional level. Such a campaign should have been undertaken, regardless of the product promotion aspect, even when times were normal. If, as appears probable, GAMA members are again to find themselves operating under wartime conditions, it seems doubly imperative.

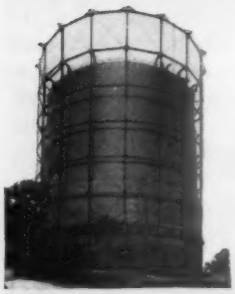
Without any apologies at all, we submit that the following objectives, which have already been presented to the Board of Directors of GAMA and which died somewhere in committee, are essential to an institutional public relations and publicity program for that organization:

1. To enhance public recognition of the essential function and economic importance of gas appliance and equipment production.
2. To foster and develop a stronger spirit of cooperation between GAMA members and the gas utilities.
3. To align GAMA in solid support of gas industry programs, and in opposition to political obstruction or unnecessary restriction.
4. To maintain and present publicly a sense of industry solidarity and responsibility in the interests of national defense.

During periods of uncertainty, strong industry unity is a prerequisite to adequate recognition of the industry's essential character. In our opinion the time to build that unity and portray it publicly is not 1951. The time is now.

Elliott Taylor

FOR BETTER GAS SERVICE *Specify*



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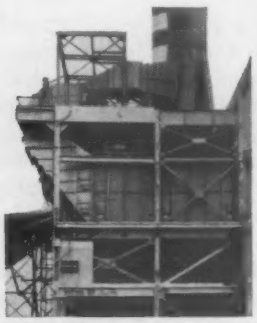

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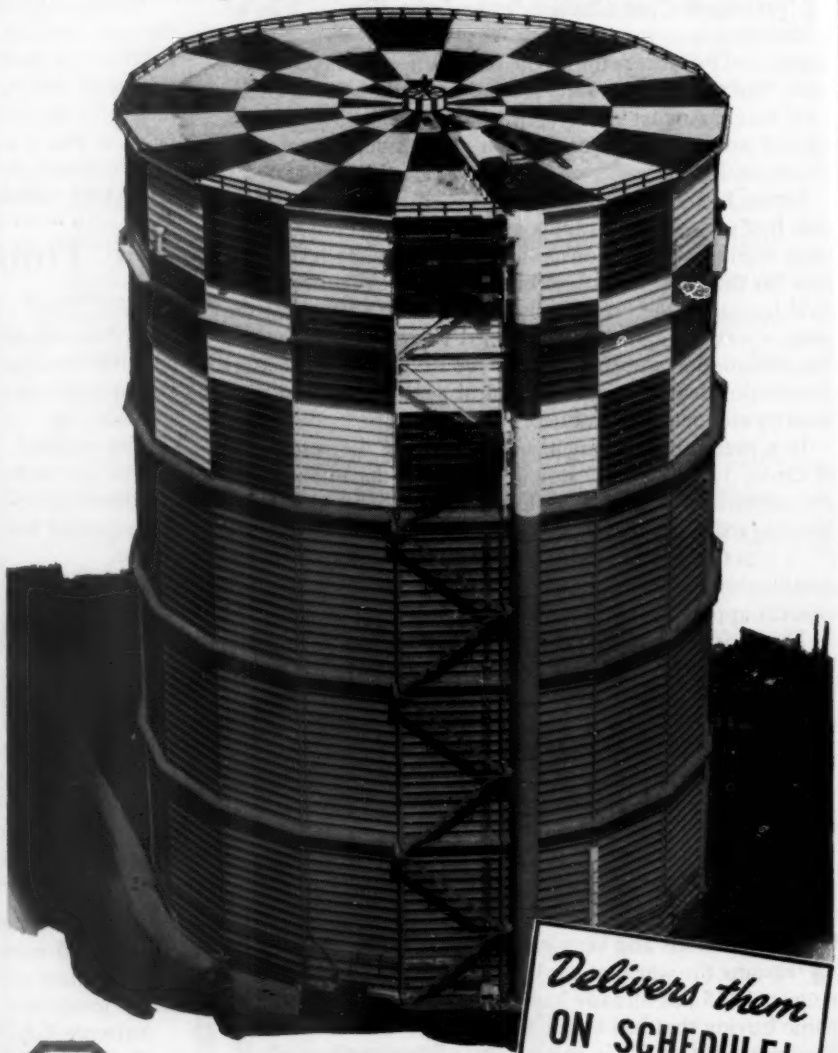

WHEN PLANT EXPANSION dictates more storage capacity, specify Koppers Waterless Gas Holders. Only Koppers has sufficient experience and facilities to build any Waterless Gas Holder up to 22,000,000 c.f.—*under one contract!* And Koppers has a reputation for completing construction well in advance of penalty dates.

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Bulletin 102 contains full technical information and specifications. Write for your personal copy to: KOPPERS COMPANY, INC., *Gas Apparatus Dept.*, 248 Scott Street, Baltimore 3, Maryland.

KOPPERS COMPANY INCORPORATED

METAL PRODUCTS DIVISION, BALTIMORE 3, MD.

GAS HOLDERS • ELECTROSTATIC PRECIPITATORS

Natural Gas Line Crosses Hudson River For First Time at Poughkeepsie

by George H. Landis

Chief Engineer, Central Hudson Gas & Electric Corp.

THE first crossing of the Hudson River by natural gas pipe line was completed July 8 by the Central Hudson Gas & Electric Corporation of Poughkeepsie, N. Y.

Two 2,600-foot eight-inch pipes were pulled together across the Hudson from Poughkeepsie on the east bank of the river to Highland on the opposite shore.

This closed the last gap in a $2,000,000 40-mile natural gas line extending north from a connection with a Columbia Gas System line near Tuxedo, N. Y. and terminating at the company's main gas works in Poughkeepsie.

By late summer natural gas will be transmitted from the gas works to Newburgh, Kingston, Beacon, Saugerties, Poughkeepsie and a number of smaller communities.

The Poughkeepsie-Highland underwater operation was the most critical faced along the entire 40-mile pipe line route. At its deepest point, the river bottom lies 65 feet below the surface and as the pipe was dragged the width of the river it had to run hazards of tide, current, surface vessels, logs and the mud and rock bottom. The fact that two pipes were pulled at once was a further complication.

The pipe used was extra heavy API-5L electric weld in 40-foot sections with an outside diameter of 8.625 inches and a wall thickness of 0.375 inches. The sections weighed 33.10 pounds per foot. After mechanical cleaning at the mill, a coating of pipe line primer was applied as well as mill wrapping of 3/32 inch enamel, glass fibre and 15-pound asbestos-asphalt impregnated felt. A wrapping of Kraft paper was applied to protect the coating during shipment.

In the field the 40-foot lengths were welded into 600-foot sections and the joints were wrapped by hand. In addition, to afford mechanical protection during the pulling operation, the entire line was given a final field wrapping of 3/16 inch rock shield banded on with steel straps.

All pipe was tested hydrostatically at the factory for 1,800 pounds pressure and in the field for 600 pounds. When placed in use for transmission of natural gas, the maximum operating pressure will be about 300 pounds.

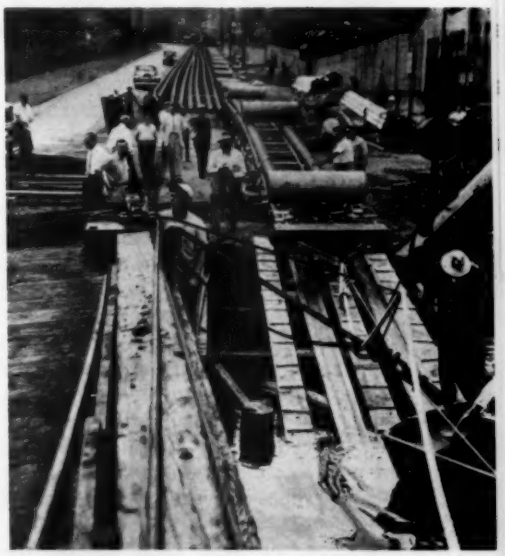
The 600-foot twin sections were welded on wooden supports parallel to a twin skidway leading to the water. The first sections were then lifted by crane off the supports and on to the skidway where they rested on heavily greased wooden shoes placed at 40-foot intervals. The natural incline of the hill lessened pulling strain considerably. A steel cable attached to the tail end of the twin sections was held by a motor-driven crane at the top of the street to keep the pipes from running away. After the first twin section was pulled into the water, the next twin section was lifted off the wooden supports and on to the skidway.

A spreader cut from a 14-inch I-beam and welded to the pulling ends of the two pipes kept them separated by three feet during their underwater trip. The pipes were made watertight by steel plates welded over their ends.

Because of the pipes' negative buoyancy of nine pounds per foot, 85-gallon steel tanks were attached at approximately 42-foot intervals to decrease negative buoyancy to about five pounds per foot. The greater buoyancy considerably decreased the pulling force required.

At the start of the operation, a barge equipped with a steam winch anchored near the Highland shore. A cable was carried by boat across the Hudson from the winch to the Poughkeepsie shore. There it was hooked on to the spreader attached to the first twin section. Another barge stood ready on the Poughkeepsie shore with a steam winch to support the front end of the pipe so that it would not dig into the river bottom as it crossed.

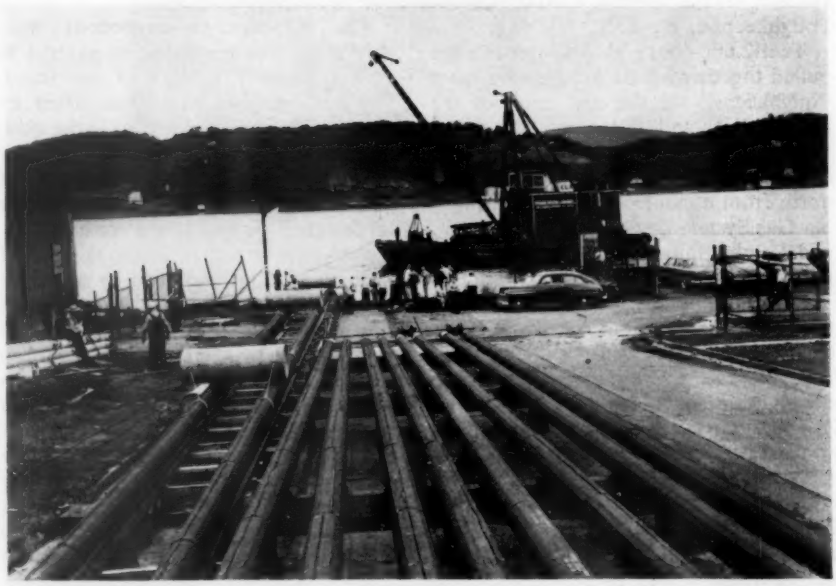
Before the pulling operation, soundings were made from a boat to determine the exact contour of the river bottom. These were checked by spot observations made by a diver. The diver check was primarily made so that ade-



The twin pipes are ready for the plunge. bank into the Hudson.

The crossing is completed as the double pipe line emerges from the water on the opposite shore.

The final welding is completed on the spreader beam which keeps the twin pipes separated for the under-water trip. Pipe ends are sealed water-tight.



Looking across the Hudson River—the pipes have entered the water, and the derrick on the barge helps guide them as they move slowly across the river bed.

quate protection could be given the older 8-inch manufactured gas line that was to be crossed by the twin natural gas lines.

The winch at Highland slowly pulled the first twin 600-foot section, weighing almost 40,000 pounds, down the greased skidway and dragged it out about 575 feet along the river bottom. Two more 600-foot lengths were transferred from supports to the skidway, welded to the exposed end of the pipe on the river bank, and then pulled into the river. This procedure was repeated until all the twin sections were joined and the two long pipes emerged on the Highland shore.

Because of their great weight, the twin pipes are not anchored. They will hold their position against the strongest tides and currents and the great depth of the river will protect them from severe temperature changes.

About 1,000 feet from the Poughkeepsie shore of the river, the new natural gas line crosses an older eight-inch manufactured gas line. Great care was exercised during the pulling operation to protect the older line. At the crossing point an 80-foot casing of 14-inch pipe, split lengthwise, was placed over the manufactured gas line. This shell-like covering was then filled in from river bottom mud and silt.

The pulling operation was carried on only during daylight hours and took about three days. Actual pulling time, however, was less than five hours since the pipe entered the water at the rate of about ten feet per minute. Much time was spent in shifting the position of the barges, making and testing welds, and wrapping joints between pipe sections.

For protection, the shore ends of the pipes were buried in trench about four feet in depth. The trench extends about 300 feet into the river on both the Highland and Poughkeepsie shores. The balance of the pipe lies on the river bottom. After the pipe was laid a diver walked the line to check its location and to be sure that it was lying firmly on the bottom.

The entire 40-mile line from Tuxedo to Poughkeepsie is buried except for the exposed portion lying on the river bottom.

No weights were employed on the line because the weight of the pipe itself is enough to hold it in place. There are no swift currents, the maximum current being about four miles an hour. Moreover, for 15 years Central Hudson has had an older manufactured gas main crossing the river at this location and experience with this line indicated no special weighting was necessary.

When the entire job was done, a diver inspected the 2,600-foot connection and at the same time released the 85-gallon steel tanks attached to the pipes.

No Certificate Required For Radio Facilities

The Federal Power Commission has dismissed, for lack of jurisdiction, the application of Montana-Dakota Utilities Co., of Minneapolis, for authorization to install and operate radio facilities along the route of a natural gas pipe line now under construction in Montana and Wyoming.

The FPC said that the communication equipment falls within the scope of the installations described in Section 2.55 of the Commission's general rules and regulations and no certificate is required for its installation and operation.

Section 2.55 provides that the word "facilities", as used in Section 7(c) of the Natural Gas Act, shall be interpreted to exclude those installations which are merely auxiliary or appurtenant to an existing transmission pipe line system and which are installed only for the purpose of obtaining more efficient or more economical operation of authorized transmission facilities.

World's Longest Pipe Line Proposed To Serve Pacific Northwest

A NEW entry has joined the field of pipe line companies proposing to supply the natural gas needs of the Pacific northwestern states.

The company is Pacific Northwest Pipeline Corp., which late in June filed with the Federal Power Commission the most ambitious natural gas pipe line project ever attempted.

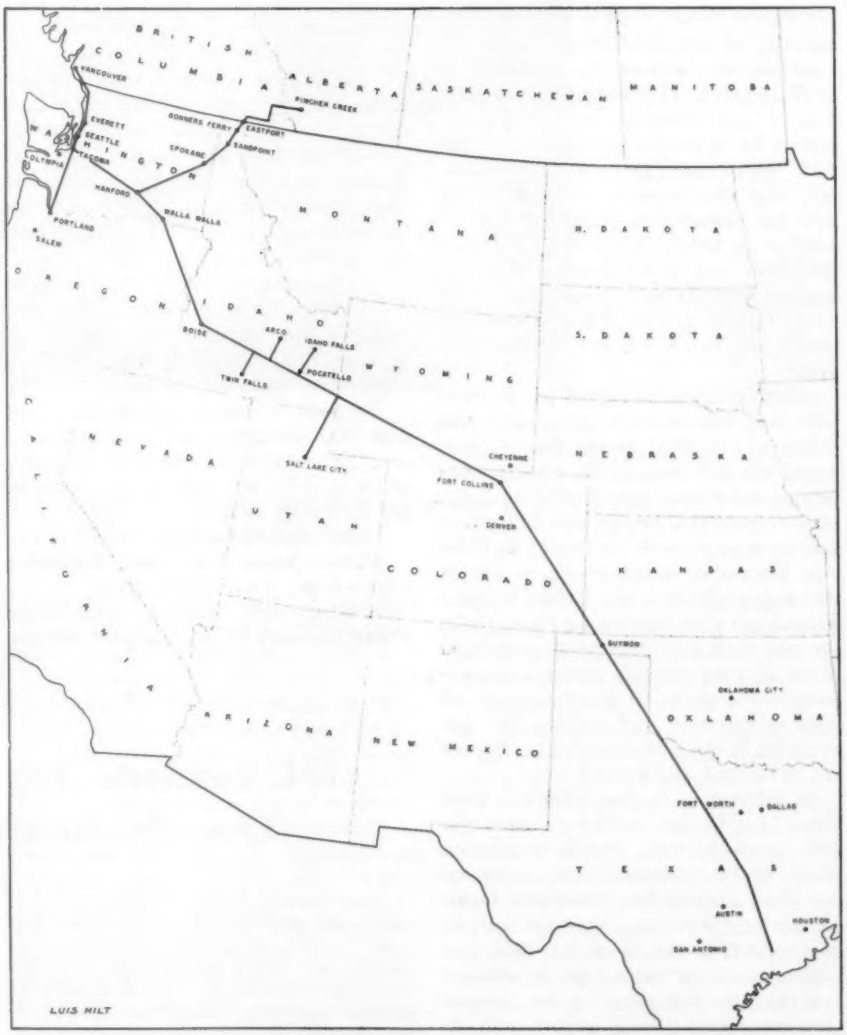
The 26 inch main line transmission portion of the line would stretch 2,175 miles from the Gulf Coast portion of Wharton County, Texas, through Texas, Oklahoma and Kansas to Fort Collins, Colorado. Thence it would wend its way westward across Wyoming to Boise, Idaho, from which point it would head northward to a terminus in the sales areas near Seattle and Tacoma, Wash., and Portland, Ore.

It also will be able to sell gas to the sales area near Vancouver, British Columbia.

The proposed new line would exceed by 315 miles the longest natural gas pipe line heretofore undertaken—namely, the 1840-line of Transcontinental Gas Pipe Line Corp. to bring Texas gas to New York City and intermediate Atlantic seaboard points.

The size of the line should be no deterrent to Fish Engineering Corp. of Houston, Texas, which is to do the engineering and constructing and which also is represented in the management of Pacific Northwest Pipeline. This identical engineering firm happens to be the main contractor for Transcontinental and its proposed second venture will be emulating for the Pacific Northwest the natural gas line which it is now bringing to completion in the east.

Two other new companies have been in the running for months past for the right to supply the natural gas needs of the Pacific northwestern states of Oregon and Washington. These are Northwest Natural Gas Co. (which filed with the Federal Power Commission as far back as February 1948) and Westcoast Transmission Co., Ltd., whose application is now about a year old. Each of these companies plans to rely wholly upon gas from Province of Alberta fields to provide the natural gas needs of the Pacific Northwest.



Route of the proposed pipe line from Texas to the Pacific northwest.

A prerequisite naturally is the obtaining of a permit to export natural gas from Alberta. To date both companies have been completely stymied by the reluctance of Canadian officials to permit such export pending proof that the sharply expanding natural gas needs of the Province of Alberta itself can be guaranteed for at least 50 years.

No such obstacle would appear to be in the path of the Pacific Northwest Pipeline Corp. On the basis of its present plans it proposes to rely on Alberta fields for only 100,000,000 cu. ft. daily. It proposes to purchase this at or near the International Boundary between Idaho and Canada.

Although this gas would represent approximately one-third of the gas requirements of the Pacific Northwest (Ore-

gon, Washington and Idaho) "this quantity of gas," the company states in its application to the Federal Power Commission, "is equal to the amount required to meet the ultimate needs of the Vancouver, B. C., market, which actually places the Alberta Government in the position of supplying a Canadian market."

Compressed under 83,200 horsepower equally distributed through 13 compressor stations, and operated at 800 pounds pressure at compressor station outlets, the proposed line of Pacific Northwest would have a daily delivery capacity of 250,000,000 cu. ft. of gas. Cost of the venture is estimated at $174,186,602. The company estimates that it can complete its construction within 18 to 24 months after it obtains FPC approval. It plans to do a wholesale city gate business with present or new gas distributing companies and to confine its distribution solely to isolated industries and government projects requiring appreciable volumes of gas, such as the federal government atomic energy plants near Arco, Idaho, and Hanford, Wash.

It also proposes to supply gas to other pipe line transmission companies and points out in this respect that its proposed line will cross all the original lines serving the critical industrial Great Lake region, namely Chicago and Detroit. It can serve as a trunkline facility to these pipe lines and, it points out, it can in this way establish in the United States a natural gas grid connecting large Texas reserves with pipe lines to all populated areas, tapping through its main line extension the potential great reserves of Alberta Province and making this gas available to the grid as such gas reserves are developed and proved.

In contrast to its own ability to send Texas gas to the northwest once the FPC gives the nod, Pacific Northwest points to the stalemate now facing its two chief competitors, Northwest Natural Gas and Westcoast. It states flatly in its application that there are only five trillion cu. ft. of natural gas in Alberta and that the reluctance of the Alberta Government to permit export until its own needs are guaranteed "is readily understandable."

Information from sources within the Province of Alberta indicate that a number of road blocks confront Pacific Northwest Pipeline Corp., as well as its competitors, despite the company's statement that the indicated 100 million cu. ft. of natural gas which it would take from Alberta would be used in effect to serve Vancouver, British Columbia.

The points raised by these Alberta sources are as follows:

(1) Assuming that the Pacific Northwest builds its proposed line from Texas to Oregon and Washington, it is difficult to see how the company can carry a 700 mile 26" line to Alberta to take out 100 million cu. ft. a day when the maximum possible withdrawal, for the immediate future, could not exceed more than 50 or 60 million cu. ft. a day.

(2) The wholly intra-Canadian plan of Western Pipe Line to transport natural gas from Alberta to the City of Winnipeg, Manitoba, has first claim on the Pincher Creek field, from which Pacific Northwest proposes to take its gas. In any event, these Canadian sources consider it highly doubtful if the Provincial Government would permit one field only to be drawn on for export purposes if other fields were available.

(3) It is doubtful if there is enough proved and available gas in Alberta to support one export system. Certainly there is not enough to support two. This seems to strengthen the preferred position of the Winnipeg pipe line.

(4) No one knows the reserves at Pincher Creek or Jumping Pound and certainly the deliverability of the wells drilled or to be drilled in both fields is a completely unknown quantity.

Through its main transmission line and 400 additional miles of gathering and distribution laterals, the company plans to serve the natural gas needs of the following areas.

Utah—Salt Lake City.

Idaho—Snake River area, Pocatello, Idaho Falls, Twin Falls, Boise.

Kellogg and Wallace area—Sand Point, Bonner's Ferry, Eastport, Atomic Energy Plant, including the Arco area.

Washington—Spokane area, Hanford area, including AEC plant, Seattle area.

Oregon—Portland area.

Canada—Vancouver area.

On its route to these major northwest areas, the new line, the management says, "will firm up gas supplies in Colorado, Wyoming and Utah where gas supplies have been inadequate to date."

As will be seen from the accompanying map, the line also will traverse major gas producing areas of the southwest and of the Rocky Mountain area.

To improve its load factor and add to its economic feasibility, Pacific Northwest Pipeline Corp. proposes to utilize for off-peak storage of gas a 3,000-foot depleted sand gas reservoir near Hanford, Washington and to look to the possibility of utilizing a second storage reservoir near Everett, Wash.

In its application to the FPC Pacific Northwest did not indicate the estimated capacity of either of these gas storage areas.

It proposes to furnish either at the FPC hearing or in an amendment to this application important supplemental data re: demands of the territory served, reserves of gas available to the line, cost of gas and rates to be charged, and pro forma information of operating returns.

Pacific Northwest states in its application that it has sufficient funds on hand to meet expenses incurred prior to consummation of its major financing, negotiations for which it now is in the process of completing.

FPC Rescinds "No Jurisdiction" Order Over Producers and Gatherers

The Federal Power Commission has rescinded its Order No. 139 issued August 7, 1947, which stated that the FPC would not assert jurisdiction over independent producers and gatherers of natural gas who might be subject to jurisdiction solely because of arm's-length sales of natural gas.

The Commission pointed out that in the present Congress, a bill (H.R. 1758) designed to exempt producers and gatherers from the provisions of the Natural Gas Act was passed, but was vetoed by the President and did not become law.

"It is not the intention of the Commission to inaugurate a general investigation respecting existing rates charged by producers and gatherers. Where, however, the sales of individual producers or gatherers have a material effect on interstate commerce and the rates therefore appear excessive, appropriate investigations will be undertaken. In this connection, the Commission at present has under investigation the interstate wholesale rates of Phillips Petroleum Co., one of the largest producers of natural gas selling to interstate pipe lines.

"Upon conclusion of further studies of the operations of producers and gatherers and of the administration involved in their regulation, the commission plans to promulgate rules and regulations specifically applicable to them."

Commissioners Harrington Wimberly and Nelson Lee Smith filed a separate concurring statement, saying that "we concur in the action of the commission rescinding Order No. 139 only because that order does not accurately reflect the interpretation placed by the majority on the Natural Gas Act, and therefore the policy of the commission. Our views will be stated more fully in a concurring opinion to be filed."

Familiarization Course Orients New P E Employees

Apparently the motion picture used in the Philadelphia Electric "new employee training course" fascinates the audience.

by A. M. Boyd

Assistant Manager, Personnel and Public Relations
Philadelphia Electric Co.

EXPERIENCE has shown that new employees are often inadequately informed and in some instances misinformed about the company which they have joined. In fact, inquiries made approximately four years ago of new Philadelphia Electric Company employees showed, for example, that some thought of the Philadelphia Electric Company as an affiliate or branch of General Electric. There were those who did not know that that customer services included gas and steam as well as electric. Estimates as to the number of employees ranged from 100 to 100,000 when the actual number, at the time, was in the neighborhood of 7,000.

Why Company Familiarization Training Is Needed

It is desirable, from the viewpoint of *customer relations* of a utility company to furnish accurate and detailed information about the company, its services, and its operation to new employees. From the viewpoint of *employee relations*, it is even more important that new employees be given first-hand and accurate information about working conditions, opportunities within the company, its personnel policies and practices, employee benefits and privileges, etc., in order that every new employee may start his career with the feeling that the company which has given him a job is a "good company to work for." At the same time new employees can be given some idea of their obligations with respect to performance on the job in order to ensure the job security, the remuneration, the opportunities and other advantages which they consider important.

In general a company, especially one which has gone to great lengths to provide satisfactory conditions of employment, has the responsibility of stating its position to new employees. A new employee who starts his job with a conviction that he has joined a good company is more likely to develop attitudes favorable to the company and to continued adjustment to the job. Management which spends money in improving its working conditions, and in extending benefits and privileges is short sighted if it does not take the steps necessary to make sure that such improvements lead to good morale.

The need is particularly urgent because if the company fails to tell the new employee what it is like, he may receive his first impressions from some misinformed or disgruntled employee who, intentionally or otherwise, fails to give a true picture of what the company provides. First impressions are lasting ones, and it is to the interest of the company, and also to that of the new employee, that such first impressions are moulded by those in the organization who have all the facts and can present them in such a way as to build wholesome attitudes towards the job and towards the company.

To do this cannot be the sole responsibility of any one individual in the organization. A major share of the responsibility falls upon the supervisor who, by the way in which he receives the new employee, and through his initial contacts with him, can do much to create job satisfaction and employee morale. However, the supervisor's job can be made easier if something is done in the way of providing systematic presentation in the form of company familiarization or orientation training for new employees.

This is the spirit in which Philadelphia Electric embarked early in 1946 upon a program of company familiarization for new employees.

The first step in informing the new employee about the company takes the form of *mailing to his home* a copy of a booklet entitled *"You and Your Company."* This lists the departments and divisions of the company, discusses working conditions, and describes in some detail the many benefits and privileges

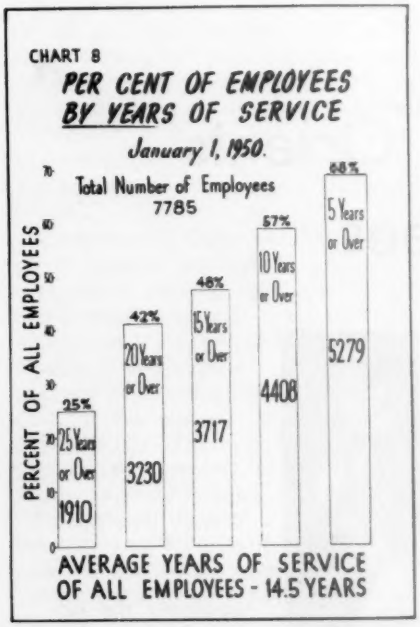


CHART 8
PER CENT OF EMPLOYEES BY YEARS OF SERVICE
January 1, 1950.
Total Number of Employees 7785
PERCENT OF ALL EMPLOYEES
25% 25 Years or Over 1910
42% 20 Years or Over 3230
48% 15 Years or Over 3717
57% 10 Years or Over 4408
68% 5 Years or Over 5279
AVERAGE YEARS OF SERVICE OF ALL EMPLOYEES - 14.5 YEARS

Chart used in discussing relative job security in a public utility company.

enjoyed by company employees. The new employee is urged to read this carefully, and also to familiarize himself with two additional publications, *"You and Your Retirement Plan"* and *"Making Your Ideas Count,"* a description of the suggestion award system, which are also *mailed* to him.

The main feature of the company familiarization program consists of a 2½ hour conference attended by each employee within the first month of employment. Conferences are held once a week in the Philadelphia area and once a month in the suburban areas. When the new employee is assigned to his job, a notice is forwarded to his supervisor giving the date of the next session in his area and requesting that the employee be instructed to report at this session.

The familiarization training conferences are conducted by the division of personnel research and training, personnel department. The session opens with a brief discussion of the functions served by the company. Attention is called to the fact that the Philadelphia Electric Company is a combination utility furnishing *gas, electric* and *steam* services. With the aid of appropriate charts, a few facts are given about the size of the territory, the number of customers, and the potentialities of the company as reflected in the growth of electric and gas sales since 1925, and anticipated expansion. An opportunity is taken at this point to discuss briefly the cost of electric and gas service to the customer, with emphasis upon the cheapness of these services and upon the fact that during a period when prices of all other commodities have skyrocketed, the cost to the customer of electric and gas service has not risen appreciably.

Familiarization Film "You and Your Company"

Such introductory discussion is followed by a 25-minute sound motion picture film in technicolor, entitled *You and Your Company*, which was prepared especially for this familiarization training program.

The film opens with a few shots of the first installation of electric arc lamps for street lighting in Philadelphia in 1883, and moves quickly to an overview of present-day operation, including pictures and related comments pointing to the magnitude of the company's responsibility in furnishing electric, gas and steam service in a large industrial center and its surrounding area. Following a brief reference to the part played in this operation by employees of the company, the vice-president in charge of personnel and public relations, Geo. R. Conover, is introduced. The statement made by him establishes the framework for the remainder of the film. It is:

"I should like to say a few words to you about this company. I wish I could do it more directly by stepping out of this picture to shake hands, and to tell you personally that you joined a great team when you came with this organization.

"Most of our fellow workers have been around here a great many years—the average about 15 years. That gives you some idea of what the employees think of the Philadelphia Electric Company.

"As the film is shown, you will see many of the people who work here and what they do. You will learn a great deal about the company from this film which will give you a feeling of assurance about your future with this organization.

"My purpose is to welcome you into the team, and to express the hope that each one of you will find there the life work that you have been seeking. I am sure that as time goes on you will come to repeat what all of us around here say—'This is a good company to work for.'"

Mr. Boyd, the author of this article, has for many years been an active member of the Personnel Committee of the American Gas Association, and has made many contributions to its work.

The main portion of the film is organized chiefly around the objectives of presenting a vivid picture of the variety of jobs done by Philadelphia Electric Company employees and of the many opportunities available in the company. There are many shots of people at work—operating equipment at the electric generating and gas production plants, maintaining electric and gas transmission and distribution service, reading meters and performing accounting and clerical duties, and carrying on the engineering, customer contact, selling, personnel and other functions of the company.

While focussed on the objectives referred to above, the film provides the occasion for referring to many aspects of company organization and operations. Throughout the film there are many pictures of buildings and equipment used in the production of electric power, gas and steam and in bringing these services to the customer. Comments are made concerning the investment required in these facilities and the need for providing the kind of service and efficient and profitable operation which will build up public confidence in the company, and lead people in the community and elsewhere to provide the funds for further expansion and increased service to the community.

Appropriate shots and comments are introduced to emphasize the company's interest in *personalized service* and the lengths to which the company and its employees will go in establishing friendly and productive contacts with customers.

Repeated emphasis is placed upon the concept of *people working together* towards a common end. In this connection, reference is made to the fact that the employees of the company not only work together but play together and pictures are shown of various employee recreational facilities, including employees' association meetings, the company athletic field, hobby shows, etc.

The final feature of the film is the

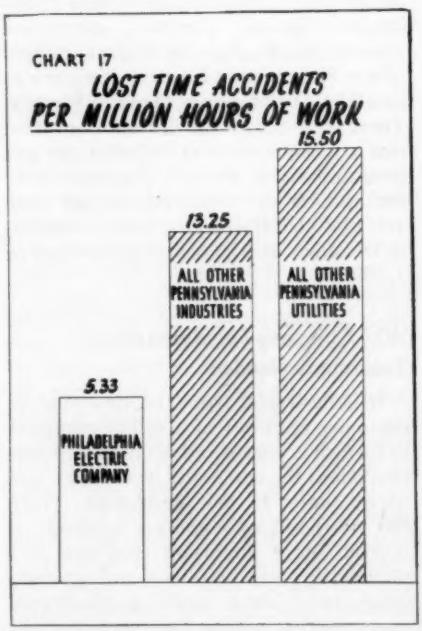


Chart used in discussing safe working conditions.

closing statement by Geo. R. Conover, vice-president in charge of personnel and public relations. He says:

"The services which this company—and others like it—provide are basic for the welfare and comfort of every man, woman and child and for the economic stability of the community. In the past half century the utility industries, particularly the electric utility companies, have transformed the way of life in this country—substituting power for manual labor —making available both in industry and in the home an ever-ready servant for eliminating much of the human toil formerly needed to get the work of the world done.

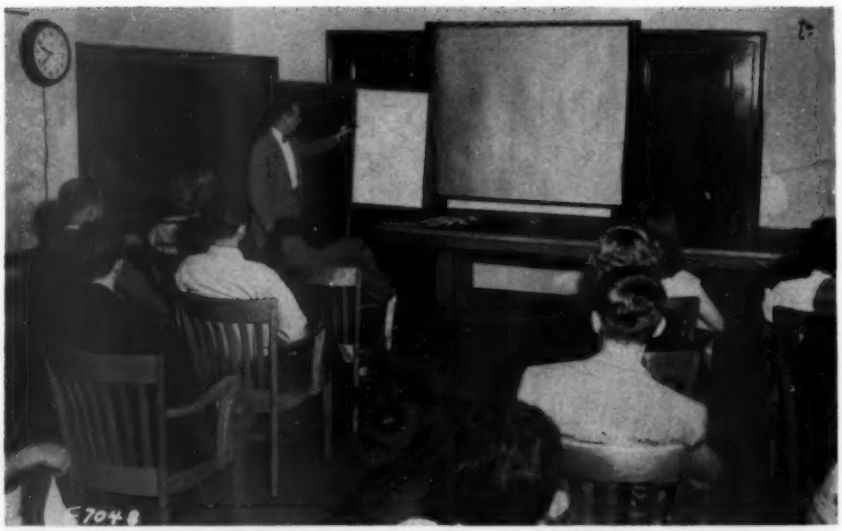
"We must continually strive to make our services, which play such a fundamental part in everyone's life, more reliable, less expensive, and more adaptable to the users' needs. Only by doing this can we hold and gain popular confidence, and also be in a position to meet the attacks on the industry by those who would substitute government ownership for individual initiative and enterprise and undermine the economic foundations of the American way of life.

"To do these things, to keep its horizons broad and its spirit progressive, the Philadelphia Electric Company must have a continuous influx of able and ambitious men and women. I take pleasure in welcoming you to the Philadelphia Electric Company as those men and women who will, in the future, share the challenges and the opportunities provided by this great company."

Discussion of Employee Benefits and Privileges

At a number of spots in the film reference is made to the fact that this *"is a good Company to work for."* This phrase is used in introducing the discussion period, lasting approximately 1½ hours, which follows the film. The purpose of this portion of the conference is to provide a detailed discussion of the many advantages and, in particular, the many benefits and privileges enjoyed by employees of the Philadelphia Electric Company. It is this portion of the company familiarization program which implements the point of view that a management which spends money in improving its working conditions and in extending benefits and privileges has the responsibility for seeing that new employees are aware of them and of using them to build good morale among new employees.

This discussion period is informal in character, developed in such a way as to provide every opportunity and encouragement for new employees to obtain the answer to any questions about the company and its personnel policies which are on their minds. The springboard to this discussion period is the question,



This is a typical lecture-room scene in the course for neophytes, whose average age has been reported as 25½ years.

"What makes a company a good company to work for?" Experience has shown no hesitation among new employees to express their opinions on this question. It is of interest to note that the replies fall in a general pattern with *job security* almost invariably being mentioned first, *opportunity for advancement* next, and such items as *sickness benefits, wages, life insurance, pension plan, working conditions, nice people to work with,* and others, following in a random order.

As items typifying a good company to work for are mentioned, these are put on the blackboard. The conference leader then proceeds, by reference to the company handbook, *"You and Your Company,"* which all employees have received, and by reference to other materials, including charts, to show what provisions are actually made under these various headings.

As indicated earlier, questions are encouraged. Sometimes these become very specific in character as a new employee raises a query about a problem of overtime or some question about the educational refund plan which has already risen in the course of his employment with the company. Occasionally, some questions of policy may be highly detailed and such that the conference leader cannot answer immediately. In such instances the new employee is told that an answer will be furnished to him through his supervisor, and this commitment is invariably met.

What New Employees Think

There is a good deal of evidence available to show that new employees enjoy and appreciate this session of familiarization with the company, its operations and its policies. This consists, in part, of comments made in writing by new employees in response to the conference leader's request to state what they thought of this familiarization session. In collecting such comments from a large number of successive classes, new employees were, of course, told not to sign their names. They were furthermore told that the conference leader was not interested in testimonials, but that he was honestly interested in any comments that would be useful in making the familiarization session more helpful and more interesting to new employees. Nevertheless, the comments, with extremely few exceptions, turned out to be testimonials for a company familiarization training for new employees. The following are typical:—

"Very constructive. Enable me to better understand the organization and cleared up some of the privileges extended to me as an employee."

"Program really very worthwhile. I wondered just how long I'd work before I learned things about the company that I wanted to know."

"I have learned today that working for the Philadelphia Electric Company is more like working at your own business. You are helping yourself and the public at the same time."

"I believe this program given this morning is definitely worthwhile. While it shows us the many benefits of the company, I think it also tends to bring the employee and employer together on a more friendly basis. The better an employee knows the workings of the company, the better he can perform his particular job."

"This type of program is very bene-

(Continued on page 48)

High Btu Oil Gas Fits Program For Interim Use and Standby

by K. W. Stookey

President, The Gas Machinery Co., Cleveland

K. W. Stookey

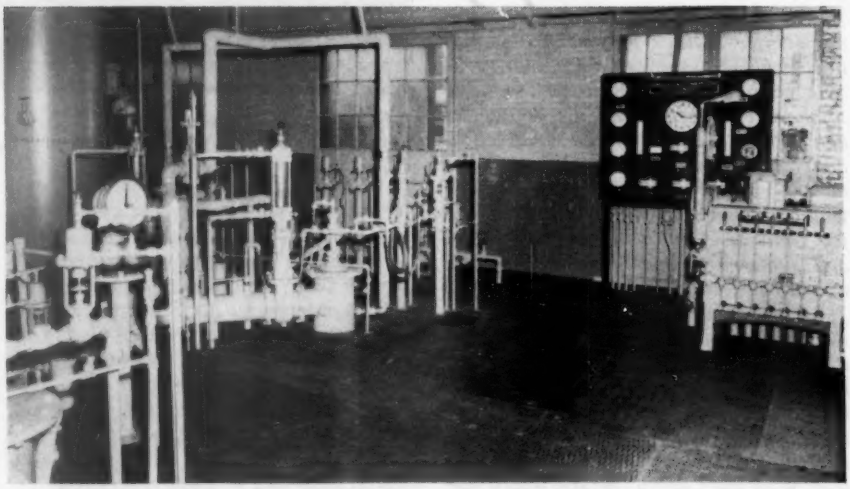
THE problem of high Btu oil gas for interim use and natural gas standby is divided into two distinct parts, i.e., its interim use and its availability for stand-by purposes later when natural gas arrives.

Oil gases are nothing new in the industry and have been used for decades in the far west. During this time the rest of the country used oil gases too, but almost without exception only for carburetting water gas. Both, however, were applied exclusively to gases of lower Btu value. Higher Btu gases were known but were seldom applied as send-out gases.

With the discovery of vast natural gas deposits in the midcontinent and southwestern areas and the development of economical pipe line distribution techniques, the spread of natural gas began and with it the problems which face so many gas companies today.

With the impending arrival of natural gas many companies are already studying how best to prepare for it and take advantage of any economies which may be gained by using oil gases during the period preceding and have the same equipment and gases available for stand-by and peak shaving. Much valuable help can be gained from studying how this is being done in several places in the East.

Cambridge, Mass., was the pioneer in applying straight oil gas of high Btu value (951 Btu) as a full replacement for 528 Btu carburetted water gas. At that time, the arrival of natural for them was rather indefinite, yet it did play a part in their decision, since, three years ago it was hoped that an oil gas would be made which could be used to interchange with natural if and when it came.



Operating floor for two small twin-generator sets serving as standby for natural gas. These have been used for 100 per cent replacement of the sendout gas.

The decision to change to oil gas was based mainly upon the studies of Gordon Howie and Hall Henry for immediate solution of problems facing them. This work has been presented at Association meetings in various phases and at various times, and has been fully published in our trade journals,* but it may be helpful to condense the questions confronting them and their answers:

(1) How to increase plant generating capacity.

(2) How to increase distribution capacity.

(3) How to reduce the cost of gas.

(4) How to do all of the preceding at a minimum of cost.

(5) And how to do this before the coming winter season.

Oil gas was selected because:

(1) Generating capacity could be approximately doubled by increasing the Btu in that ratio.

(2) The same was true of the distribution system.

(3) Using light oil and allowing for reduced fixed charges and labor, holder costs could be reduced.

(4) This would be possible because the plant conversion could be done for a small fraction of the cost of additional equipment. Little expense was necessary for the distribution equipment except for conversion and this could be accounted for over a period of years by arrangement with the regulatory bodies.

(5) All work could be completed before winter.

After almost three years of operating results, Cambridge is on record as to the wisdom of the choice.

There had been a substantial amount of oil gas manufactured in the preceding few years for the purpose of augmenting or peak shaving for natural gas by companies that had converted existing carburetted water gas equipment to this purpose, but the general feeling and advice at that time was that only about 35 per cent of oil gas could be successfully added. In the meantime, study and ex-

Presented at annual convention, Pacific Coast Gas Ass'n, Seattle, July 31-Aug. 3, 1950.

* *See* AMERICAN GAS JOURNAL, *Nov.-Dec. 1949.*

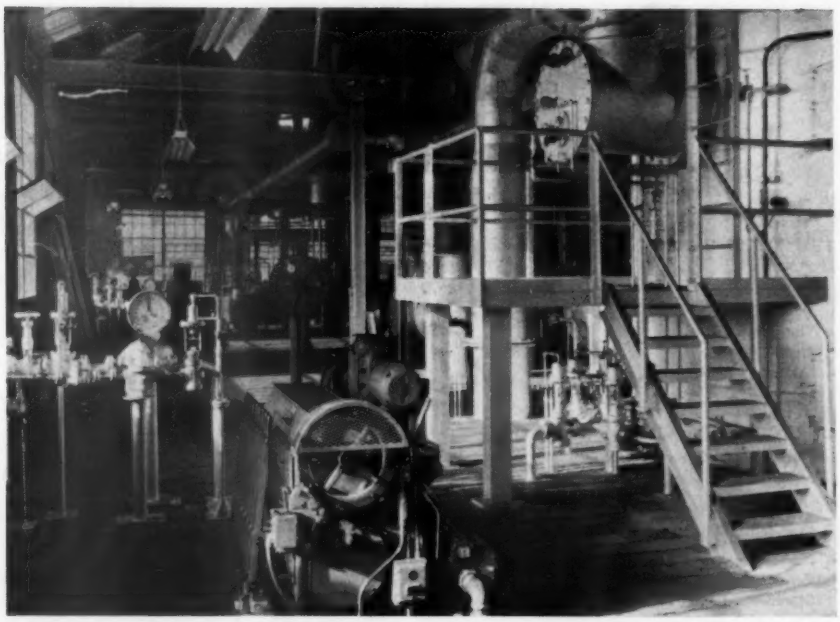
perimentation were being conducted to see if greater percentages could be used satisfactorily, since the load factors developing were demanding greater and greater percentages for peak shaving.

If oil gases capable of being substituted 100 per cent could be made, more stand-by capacity was available to assist in load factor control. Also those companies expecting natural gas in the future could convert entirely to oil gas at once and gain the economies afforded by it in the meantime. This being true, the conversion of appliances could be done once and finally.

This now seems to be possible and some New England companies are following the lead of Cambridge, and are preparing at the same time for natural gas. Several, at present, are using oil gas machines but are blow running or diluting with air to make a gas of such characteristics that it can be used without a major conversion, since shutter adjustments are required for only a few critical burners. Next year a full conversion is planned.

One company will start conversion the first of August to a 1015 Btu .76 sp gr oil gas. This gas will be of such characteristics that when natural gas of 1040 Btu .60 sp gr comes, it can be used without further adjustment. Tests are now being run with various oil gases, appliances adjusted on them and then checked with natural gas which is sent in, compressed in bottles. This latter gas is reputed to be of the type which will be supplied to the utility at a later date.

It is being stated now that oil gas may not be 100 per cent interchangeable with natural gas but that natural gas can be made 100 per cent interchangeable with oil gas. This seeming paradox is logically explained by understanding that oil gas has a narrower range of adjustment than natural gas. If oil gas had a good close adjustment with pre-knowledge of the characteristics of the natural gas to be used, it can be done since the natural gas will burn with greater latitude or over a greater range. This is the method being followed at Lynn, Mass.



Operating floor showing two shell regenerative set, four shell Hall set, and two twin-generator oil gas sets.

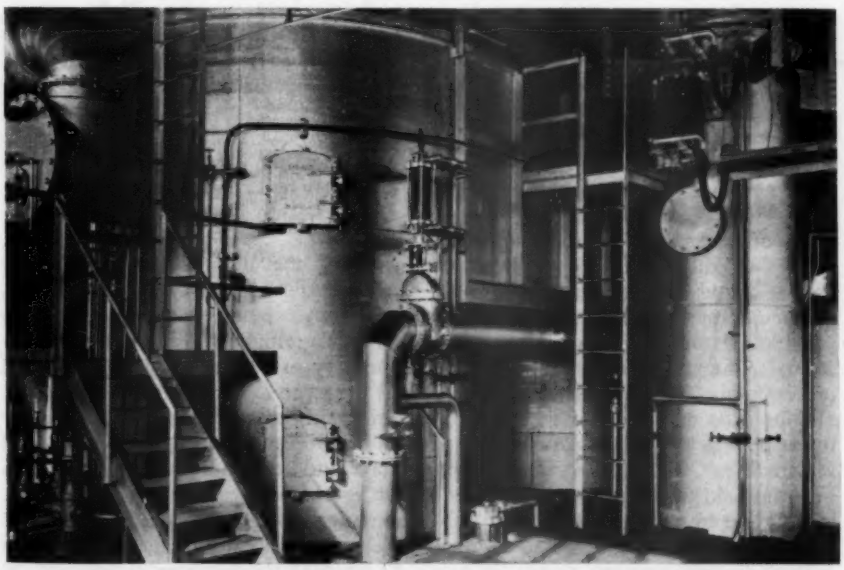
There are a number of different machine designs for making oil gas, some of which cannot make the proper oil gas for a natural gas alternate, while others can—but even the latter may require special processing of the oil gas for proper control. This refers mainly to oil scrubbing to reduce the high Btu illuminant fractions which tend to cause yellow tipping. The elimination of process steam is advisable since this tends to favor the formation of light oils and illuminants and which later may have to be taken out. Also steam enters into the reaction, little if at all, beyond absorbing heat and giving undesired extra back pressures.

It should be borne in mind that all the early work and study on high Btu oil gases were done with the use of light oils. Because of the shift in the oil markets, whereby good gas oils were in demand as catalytic or thermal cracking stock and other light oils were finding new markets as house heating and diesel fuels, the post war price of such oils increased. This was unexpected by all, including the oil companies themselves, with the result being that oil gases began to lose their lustre.

The Gas Production Research Committee of the American Gas Association foresaw the possibilities of working out methods in which the more plentiful and less expensive residuum oils could be used.

Edwin L. Hall, then AGA Coordinator of Research, Hall Henry favored this work and did something about it. As a result, test equipment was designed from revamped existing apparatus at Baltimore. Tests were run of such duration and thoroughness to prove that it could be a commercial success, provided that the proper attention was paid to the quality, type and characteristics of the oil.

The process is now known as the



This shows upper portion of two shell regenerative oil gas set. Shells and crossover tunnel are at left. Purge pipe, stack, wash box at right.

Comparative Holder Costs At June 1950 Prices
Using Heavy Oil for
Oil-Gas and Carburetted Water Gas

	Carb. Water Gas	High Btu Oil-Gas Sets					
		Aruba Oil				N. E. Enrichment	
	N. E. Enrichment Cambridge	Baltimore Results		Cambridge April Results		Cambridge May Results	
FUEL PRICES USED							
Oil/gal.	5.36¢	5.8¢		5.8¢		5.36¢	
Coke/ton	$18.00	—		—		—	
B. Fuel/ton	$ 7.00	$7.00		$7.00		$7.00	
Tar/gal.	4.5¢	4.5¢		4.5¢		4.5¢	
Light Oil/gal.	—	9¢		9¢		9¢	
Steam Cost/M lbs.		70¢		70¢		70¢	
UNIT QUANTITY/MCF		951 Btu	528 Equiv.	951 Btu	528 Equiv.	951 Btu	528 Equiv.
Heat Oil or Coke	18.75 lbs.	.95	.53	.68	.38	.65	.37
Make Oil	3.65	10.67	5.92	11.33	6.29	11.12	6.18
Total	—	11.62	6.45	12.01	6.67	11.77	6.55
Lbs. Coal/Mcf	13.59						
Process Steam				13.4	7.4	13.6	7.5
Total Plant Steam #/Mcf (Est.)		139	77.2	139	77.2	139.0	77.2
Steam Made Waste Heat Boiler*		—	—	50	28.0	50.0	28.0
RESIDUALS							
Tar Gal./Mcf	.874	2.30	1.27	2.82	1.57	2.78	1.64
Light Oil/Mcf		.35	.19	.35	.19Est.	.35	.19
FOTS							
Gen. Fuel or Heat Oil	16.88¢	5.51¢	3.07¢	3.94¢	2.20¢	3.48¢	1.98¢
Make Oil	19.56¢	61.89¢	34.34¢	65.71¢	36.48¢	59.60¢	33.12¢
Total	36.44¢	67.40¢	37.41¢	69.65¢	38.68¢	63.08¢	35.10¢
B. Fuel	4.75¢	5.36¢	2.98¢	5.36¢	2.98¢	5.36¢	2.98¢
Total	41.19¢	72.76¢	40.39¢	75.01¢	41.66¢	68.44¢	38.08¢
CREDITS							
Tar	3.93¢	10.30¢	5.72¢	12.73¢	7.07¢	13.28¢	7.38¢
Light Oil	—	3.08¢	1.71¢	3.08¢	1.71¢	3.08¢	1.71¢
Total Credit	3.93¢	13.38¢	7.43¢	15.81¢	8.78¢	16.36¢	9.09¢
FOTS Total Less Credits	37.26¢	59.38¢	32.96¢	59.20¢	32.88¢	52.08¢	28.99¢
Other Costs	14.50¢	—	—	17.51¢	9.73¢	17.51¢	9.73¢
Holder Costs	51.76¢	—	—	76.71¢	42.61¢	69.59¢	38.72¢
Fixed Charges @ 13%	26.00¢	—	—	22.86¢	12.70¢	22.86¢	12.70¢
Total Costs	77.76¢	—	—	99.57¢	55.31¢	92.45¢	51.42¢
Hourly Make Mcf	240	222	400	197.1	355	190.1	342

* Waste Heat Boilers have not yet been used but are estimated to produce the quantities of steam shown.

"Hall High Btu Oil Gas Process" deriving its designation from Mr. Hall. Patent applications are taken out in his name and assigned to the AGA for the use and benefit of any or all its members.

This process has been thoroughly and accurately reported in AGA "Research Bulletin Project HB-1." As a result of this work, my company has already entered into contracts for 14 such units of various sizes and design. Several of these are in operation with others in different stages of construction.

Light oil machines, despite the differential of oil prices, may have their place, mostly where they are for standby or peak shaving purposes and where only small amounts of gas need be made annually. The cost of oil handling and heating equipment, extra tar equipment, reduced set capacity and higher operating skill necessary for residuum oils for peak shaving may be better left to light oils under such conditions.

The reverse is true where the oil gas is for base load purposes or a wider range of load factor control is desirable. Then the Hall process is capable of effecting astonishing savings.

The question may then be asked if the gas made by this process will work as an alternate to natural gas. (Assume the use of residuum oil, although light oils can also be used with some extra economy over our twin generator.) The answer to this is "Yes", although more attention must be paid to the proper selection of the oil and to the operation. Oil scrubbing appears to be more of a necessity.

With the prospect of eventually getting natural gas in the northwest and large supplies of cheap residual oils, and the fact that Bunker "C" oil gases will alternate with natural gas, it will be wise to study closely the advantages that oil gas can give until natural gas arrives.

The northwest is rather distant from known sources of natural gas and in all probability will be supplied through one line because of economic reasons. Therefore it will be more dependent upon existing plants than is the case in the east. Even there they are changing their thoughts rapidly on the significance of their plants.

If experiences with the advent of natural gas in the northwest parallel those in the east, the companies here will shortly be handling loads undreamed of now. Not only will loads increase, but much worse, load factor may become a nightmare. Since this usually is associated with space heating, there is little prospect of offsetting it with a summer load.

In the east some companies are fortunate enough to have underground storage nearby. They may have a large industrial load of such type that interruptible contracts can be had. Yet these same properties that thought they were set, as late as two years ago, face worse problems than ever, thanks to Mr. Lewis and house heating.

For instance, one company three years ago converted its plants to high Btu oil gas. They possessed a nearby underground storage pool. They were to get their own pipe line in two years. All of this is now an actuality. At that time their peak was 200,000 M/day and they would shortly have all their headaches behind them. The result—their last year's peak was 540,000 M/day with total restrictions on conversion burners in existing homes going on again last fall. New housing gas heat had to be continued for political reasons.

Political reasons also will force them, not too far distantly, to cease "discrimination" on conversion work. What will they do next? Their summer load drops to 100,000 M/day with all the industrial load they can get and they could have had a peak of 750,000 M/day last winter if they had taken on the load offered. This is not an isolated case, but rather the rule.

Using the Baltimore figures in the AGA Report HB-1 as a safe average, since other plants have figures of the same magnitude, the two oils most favored by results are the 6 per cent and 13 per cent Conradson carbon oils. To quickly figure net oil requirements per 1,000,000 Btu of fixed gas, take the total make and heat oil figure and deduct the tar figure, as it is always worth, for fuel, the price of heavy fuel oil. In the case of the 6 per cent carbon oil, the total oil is 11.62 gal., the tar production is 2.30 gal., a net of 9.32 gallons. For 13 per

(Continued on page 45)

Dust Collector for Water Gas Sets Shows High Efficiency

by Huxley Madeheim

Engineer, New York City

SUCH conditions as the "smog" in Los Angeles and other cities, dramatized by the actual loss of life occurring last year in Donorah, Penna., due to atmospheric contamination, have served to focus new public attention on the general question of air pollution. However, the American Society of Mechanical Engineers and individual members of the society representing fuel producers, fuel consumers, as well as combustion equipment manufacturers and members of the faculties of various engineering colleges and technical foundations, have been concerned with this problem for years. Pittsburgh was the first city to become a symbol of Coal Soot, air pollution combined with fog to which was given the name "Smog".

The culmination of this interest was reached in a publication of the Model Smoke Law Committee of the Fuels Division of the ASME published in May 1949 entitled "Example Sections for a Smoke Regulation Ordinance." The members of this committee included representatives of the fuel utilization branch of the US Bureau of Mines, a foremost smoke abatement engineer, combustion engineers of companies selling fuel oil and coal products, design engineers of combustion equipment and distinguished members of faculties of scientific schools and foundations.

Public Relations Angle

As this campaign of smoke abatement proceeds to gain public support and civic impetus, manufactured gas companies are finding their gas making plants the object of local censure. This is particularly true where gas works are located in close proximity to residential areas. As is so often true, the gas utilities, although not the chief offenders, become, nevertheless, most conspicuous targets.

Operators of water gas sets have always been faced with the problem of preventing the spraying out of coke breeze when the set is "on the blow."

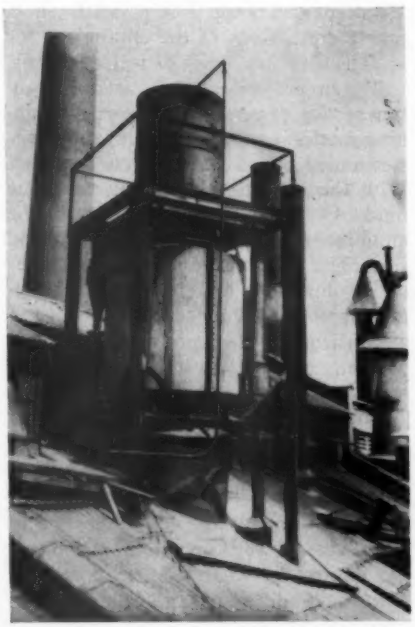


Fig. 1—Installation of Buell breeze collector mounted above the superheater of a carburetted water gas set. Small pipe in foreground runs to dust sampling equipment.

Dust collection problems such as a low draft loss requirement are encountered and have been solved in many industries. But other complicating factors, unique to water gas operators, have to be taken into consideration by the manufactured gas utility. For instance, temperatures of the magnitude of 1300 degrees F. are not encountered in the majority of applications such as, for example, boiler furnace cinder collection. The severity of operating conditions is further complicated by the fluctuation in temperature down to 100 degrees F. in the space of a few minutes.

There are, in general, only two commercial types of dust collectors, whether they be called "spark arresters," "cinder "arresters," "cinder collectors," "breeze collectors," "dust precipitators."

One of these is the electric precipitator which collects dust by electrostatic means. The other type is the so-called mechanical type which collects dust by the "cyclone" principle. In choosing either type, or specific equipment of either type, the plant operator is interested in the following items:

Efficiency of collection.
Freedom from maintenance.
Minimum space requirements and minimum construction required for installation.

and on the financial side:

Low first cost for entire installation.
Low maintenance and repair cost.

In the application of dust collection to carburetted water gas sets, the electric type is not usually favored because of the following difficulties.

Continual maintenance occasioned by the extremely high temperatures.
Larger space requirements and greater construction requirements for installation.

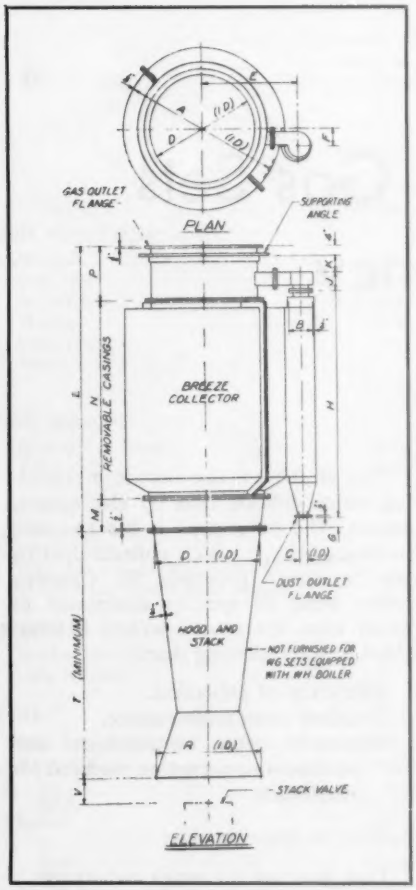
and on the financial side:

High first cost.
High maintenance and repair cost.

Improvement in the Art

This limits most of the industry at present writing to consideration of the mechanical type of collection. The principles of mechanical collection are well understood and have been applied for many years. However, as in many other fields, experimentation over a period of time with constant modification of design is necessary to provide for the most practical embodiment of the operating principles involved.

The Buell Engineering Co., specialists in solving dust collecting problems in a wide range of applications have developed and tested in actual operation a practical and effective dust collector, de-



BREEZE COLLECTOR SIZE	WITHOUT WASTE HEAT BOILER WATER GAS SET SIZE	STACK VALVE	BLOWER CAPY CFM	WITH WASTE HEAT BOILER WATER GAS SET SIZE	BLOWER CAPY CFM	WEIGHTS - LBS. BREEZE COLLECTOR	HOOD & STACK	DIMENSIONS A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	T	V
16	4'-4'-4	12"	1300	5'-4'-4	2600	800	140	2'-0"	4"	1'-4"	1'-2⅜"	4½"	1½"	2'-11⅜"	4⅜"	7½"	4'-5½"	2½"	2'-9½"	1'-5"	2'-3"	1'-8¾"	7½"
24	5'-4'-4	16"	2800	6'-5'-5	4800	1600	280	3'-0"	5½"	1'-8"	2'-0"	1'-10"	5⅜"	2"	4'-4⅜"	5½"	7⅜"	5'-11"	5½"	3'-11"	1'-6½"	3'-0"	3'-11"	9½"
38	6'-5'-5	20"	4600	7'-6'-6	7500	4500	660	4'-9"	9½"	2'-5"	3'-2"	2'-10⅜"	6⅜"	3⅜"	6'-8⅜"	7⅜"	9⅜"	8'-8⅝"	10"	5'-10⅜"	1'-11⅜"	3'-9"	6'-5"	1'-0"
54	8'-7½'-7½	24"	10500	9'-8½'-8½	14600	9000	1300	6'-9"	1'-1"	4"	4'-6"	4'-0⅜"	8½"	5"	9'-4⅝"	8⅜"	9⅜"	11'-8⅛"	1'-3⅜"	8'-11⅜"	2'-2⅜"	4'-6"	10'-4⅝"	1'-2⅝"
70	10'-9½'-9"	30"	19100	11'-10½'-10½	24300	15200	2150	8'-9"	1'-4⅞"	5'-4"	5'-10⅝"	5'-3⅝"	10⅜"	6⅛"	12'-1⅜"	10⅜"	11⅜"	14'-10⅛"	1'-9"	10'-4⅜"	2'-8⅝"	5'-7⅛"	13'-9"	1'-6"
78	12'-11'-11	36"	30700	9'-11'-11	30700	19000	2650	9'-9"	1'-6⅝"	5'-8"	6'-6⅝"	5'-10⅜"	11⅜"	7⅛"	13'-5⅜"	11⅜"	11⅜"	16'-3⅜"	1'-11⅝"	11'-5⅜"	2'-10⅜"	6'-9"	14'-7⅝"	1'-9½"
96	10'-13'-13	42"	45000	12'-13'-13	45000	29000	4000	12'-0"	1'-11"	7½"	8'-0⅞"	7'-2⅜"	1'-1½"	8⅝"	16'-3⅜"	1'-1"	1'-1"	19'-9½"	2'-5½"	14'-0⅝"	3'-3½"	7'-10⅛"	18'-5½"	2'-1½"

Fig. 2—Sketch (at left) and detail sheet (above) giving engineering data on the dust collector for water gas sets of various sizes and makes.

signed specifically for carburetted water gas sets. In solving the problem the Buell company followed their established routine.

After a survey of all equipment now available, a review of their own experiences and equipment development, they prepared engineering designs for the new breeze collector. After much laboratory development, they arranged for a test under actual field conditions. In 1948 a collector was built for application to an 11 foot water gas set of the conventional three shell type, without waste heat boiler, supplied with air by a turbine blower rated at 30,000 cfm at 70" water pressure. The installation was made on a set in one of the most critical areas, from the point of view of air pollution, in the New York suburban area.

The collector was installed on the superheater stack above the roof over the water gas sets. It is supported by four 6" H columns, approximately 25 feet in length, which are welded to the side of the superheater shell. A pipe delivers the collected dust from the collector to a bin mounted on the side of the superheater at ground floor level. The bin is emptied by means of a manually operated flapper valve into a portable receptacle for disposal along with other waste such as ash and cinders. Automatic disposal means can be provided where the plant situation warrants such a refinement.

Figure 1 is a photograph showing the installation. Figure 2 is a detail sheet giving dimensions of the equipment for various sizes and types of water gas sets.

The breeze collector consists of a bottom section of vanes which impart a spinning motion to the gases. This section is surmounted by vertical stationary vanes. With the exception of a deflector cone made of high temperature steel, the equipment is made of ordinary mild steel. The design is very simple and uses easily obtainable materials but the freedom from maintenance is gained due to a construction technique that reduces warping, erosion and burning to a minimum.

The pilot installation was made during October 1948. After six months of satisfactory operation from the standpoint of dust collected, inspection indicated the necessity for design changes to guard against warping and other difficulties due to the high temperatures. The unit was rebuilt in part and the new collector installed in October 1949. After another six months of even more efficient operation than the first unit, inspection showed no appreciable signs of wear or deterioration.

The latest authority—the ASME Power Test Code for 1941 entitled, "Test Code for Dust Separating Apparatus"—gives as the object and scope of the code the following data to be secured by test:

The overall efficiency of the separator.

The efficiency of separation according to size of particle.

The resistance to gas flow, i.e., the pressure loss in the separator.

The dust concentration at the inlet and outlet of the separator.

The size analysis of the dust entering, leaving, and caught by the separator.

The combustible content of the dust entering, leaving, and caught by the separator.

The quantity of the gas passing through the separator.

The tests were conducted in accord-

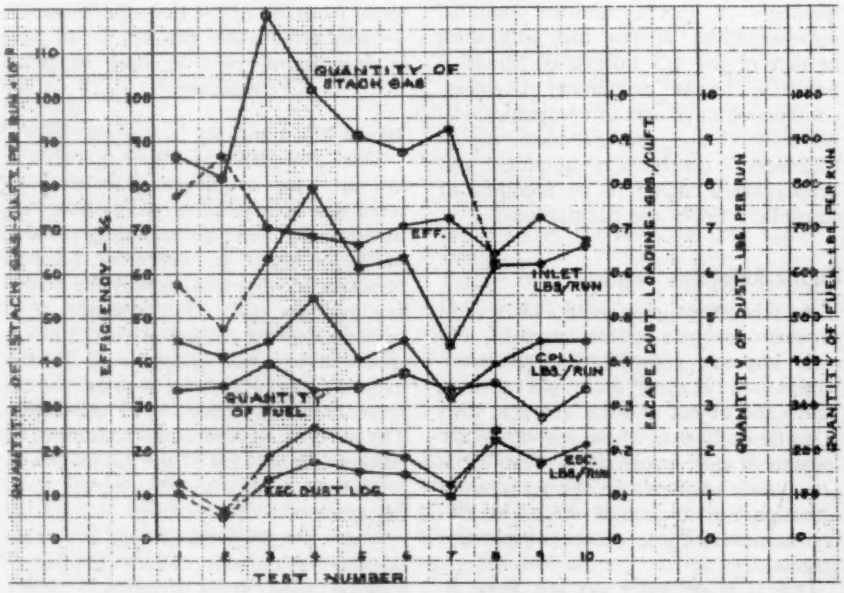

QUANTITY OF STACK GAS
EFF.
INLET LBS/RUN
COLL. LBS/RUN
QUANTITY OF FUEL
ESC. LBS/RUN
ESC. DUST LOG
TEST NUMBER
QUANTITY OF STACK GAS - CU.FT. PER RUN ÷ 10 F
EFFICIENCY - %
ESCAPE DUST LOADING - GRS./CU.FT.
QUANTITY OF DUST - LBS. PER RUN
QUANTITY OF FUEL - LBS. PER RUN

Fig. 3—Graphic portrayal of ten tests on Buell breeze collector made in Jan.-Feb. 1950.

ance with method B, as specified in the code. The dust collected was weighed, the amount of gas passed was metered and the escape dust was sampled by test equipment. Data were secured on all of the above items with the exception of dust concentration at the inlet of the separator, due to the difficulty of securing samples at such a point of high temperature. The combustible content of the collected dust was not taken because the function of the collector here is to eliminate nuisance and not to attempt salvage of combustible material. Experience with utilization of recovered combustible dust has been uniformly unfortunate in coal or coke burning applications. Most of the recovered dust, if introduced into the fuel bed, will not be combusted but will merely once again be collected in the dust collector, thus serving to overload the collecting equipment.

Figure 3 is a graphical summary of 10 tests of the collector which were made during normal operation in January and February 1950.

Data on draft loss were not taken at the same time as the other data, but operators found that no additional pressure was required after the installation of this equipment. The draft loss subsequently measured between the bottom of the collector and the top was less than 1.4". The "Example Sections for a Smoke Regulation Ordinance" previously referred to indicate that an escape of less than 0.85 lbs. of dust per 1,000 lb. of gases is desirable. During the test the maximum escape dust just reached this figure while the minimum was 0.51 and the average 0.74 lbs. of escape dust per 1,000 lbs. of gas.

AGA Announces Advance Convention Program for Atlantic City — Oct. 2-6

Speakers of national renown will address the general sessions and the meetings of the individual sections at the 1950 American Gas Association convention at Atlantic City, N. J., October 2 to 6. Among the invited guest speakers are men who are prominent in fields of industry, legislation and education, according to George E. Whitwell, vice-president, Philadelphia Electric Co., and chairman, AGA general convention committee.

Changeover from manufactured or mixed gas to natural gas will be discussed at a joint meeting of the Manufactured Gas and the Natural Gas Departments on Monday, Oct. 2.

General sessions will be held in the ballroom of the Atlantic City auditorium, Monday afternoon, Tuesday morning, and Thursday morning.

The Industrial and Commercial Section's program opens with a luncheon at noon on Tuesday at the Traymore. A managing executive of a natural gas company will speak on "The Factors Affecting the Location of Industry" with particular attention to natural gas.

The Section's annual meeting will follow the luncheon. Frederick O. Hess, President of Selas Corporation of America and President-elect, Gas Appliance Manufacturers Association, will talk on "Equipment Performance and Fuel Cost in Our Economy." John J. Bourke, director of commercial cooking, AGA, will report on the industry's efforts to combat electric competition.

At a joint sales conference of the Industrial and Commercial Gas Section and the Residential Gas Section on Wednesday morning, the industrial feature will be the presentation of a new film "Natural For Industry" made by Texas Gas Transmission Co., with a talk by Franklin T. Rainey, vice-president, East Tennessee Natural Gas Co., Knoxville, Tenn. The commercial gas feature will be a presentation "Mr. Flameless and Mrs. Flame," by Fred A. Kaiser, vice-president, Detroit-Michigan Stove Co., with an introduction by Leon Ourusoff, manager of utilization, Washington Gas Light Co.

The opening meeting of the Residential Gas Section will be held at 2:00 p.m., Tuesday, under chairmanship of H. P. Morehouse, asst. mgr.-gas, Public Service Electric & Gas Co., Newark, N. J. Frank C. Smith, President, Houston Natural Gas Corp., and chairman, AGA general promotion planning committee, will offer "Formula For Sales," a complete presentation of the Association's sales, advertising and promotional programs. H. Vinton Potter and Clifford Hall, of the AGA Promotion Bureau, will dramatize the 1951 programs.

Winners of the Gas Refrigeration Awards will be presented with their prizes. A round table forum on automatic gas laundry dryers will be held with C. H. Rippe, Hamilton Manufacturing Co., W. M. Jacobs, vice-president, Southern California Gas Co., and Irene Muntz, chairman, AGA Home Service Committee, participating as discussion leaders.

The Home Service Department will hold its customary breakfast Wednesday morning, 8:00 a.m., at the Hotel Traymore. Immediately following the breakfast the Home Service Round Table will convene in the same hotel.

The Accounting Section will be represented at the General Session on Monday by James K. Polk, New York tax authority, who will speak on "Social Security Unlimited." A general luncheon will be staged on Tuesday at the Rutland Room, Chalfonte-Haddon Hall Hotel. Speakers will include Eskil I. Bjork, vice-president, The Peoples Gas Light & Coke Co., on employee relations; and H. Frank Carey, Long Island Lighting Co., who will discuss new theories in plant accounting.

Beginning at 9:30 a.m. on Wednesday at the Auditorium, two concurrent separate meetings will be held under the auspices of the Accounting Section. Under the Customer Activities Group, the section's customer accounting, customer collections and customer relations committees will hold symposiums on different aspects of customer activities. At the same time the General Activities

(Continued on page 44)

Michigan's Fellowship in Gas Engineering Is Fifty Years Old

The Fellowship in Gas Engineering, maintained by the Michigan Gas Association at the University of Michigan, recently celebrated its 50th anniversary.

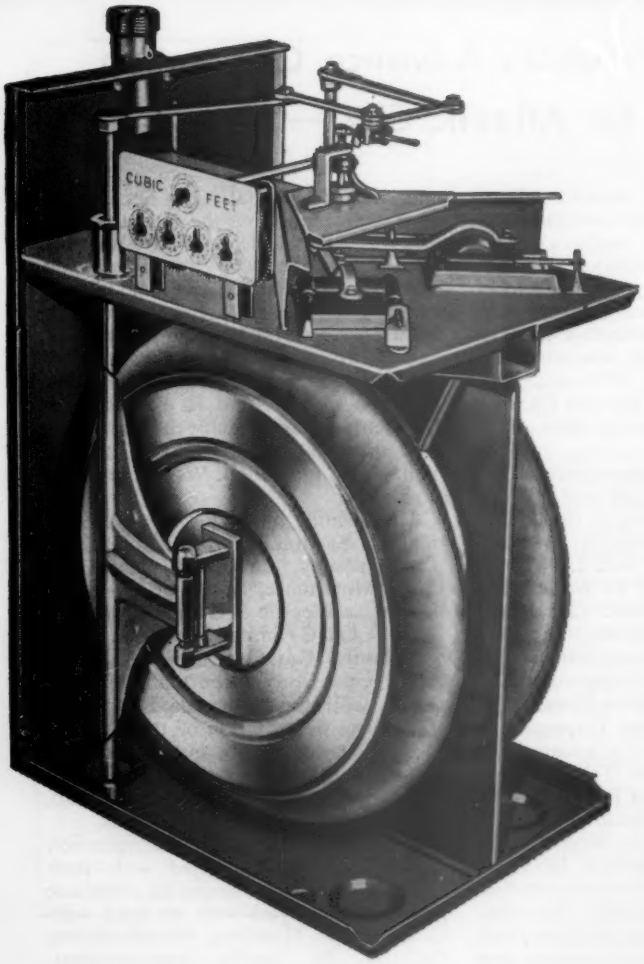
In connection with this, Alfred H. White, Professor Emeritus of Chemical Engineering, has written a history of the fellowship, including a description of the professional careers of the 43 holders of the fellowship and a bibliography of the 37 publications resulting from the fellowship work.

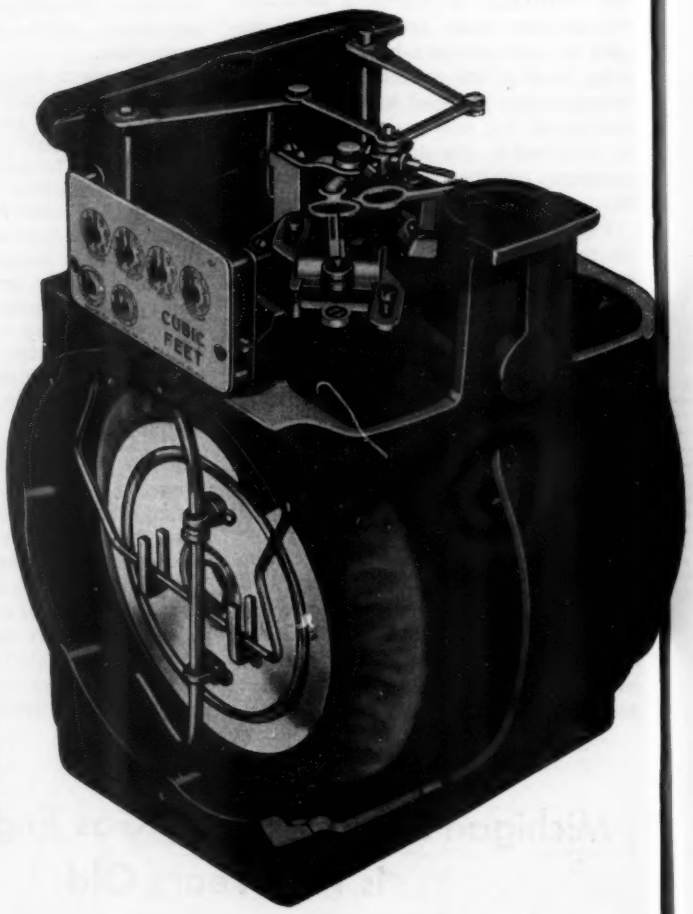
From the beginning the Fellows have investigated the technical problems which were worrying the member companies of the association. They experimented with the Welsbach mantle when gas was still trying to hold the field of household illumination. Then in 1903 they made important discoveries in methods of preventing naphthalene deposits in gas mains. This work led to the study of retort operation as well as the condensation and purification of gas under controlled conditions. At this time an experimental station was built behind the Ann Arbor plant of the Washtenaw Gas Co., where the electrostatic precipitator was first used in gas manufacture.

In 1915 the field of study was shifted to gas utilization, particularly in national defense. After World War I experiments were made with the manufacture of coal gas in anticipation of the depletion of natural gas supplies.

Today the program is organized to provide an integrated investigation of the fundamental aspects of catalysis and to accumulate a store of information in the field of the synthesis of gaseous hydrocarbons.

ONE





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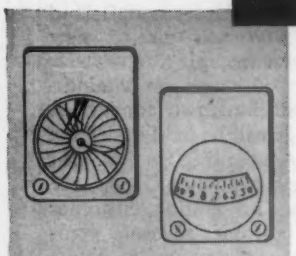
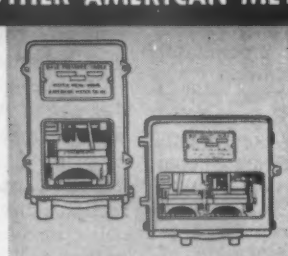
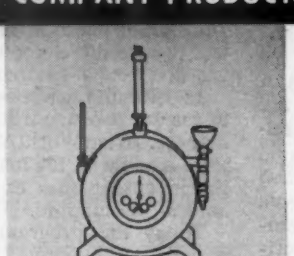


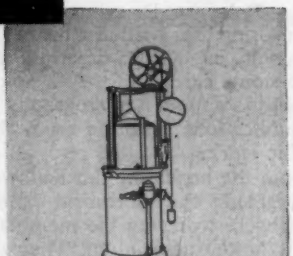
PNEUMATIC TRANSMITTERS AND RECEIVERS
(Write for Bulletin CT-49)



BASE PRESSURE AND BASE VOLUME INDEX
(Write for Bulletin E-12)



WET TEST METERS
(Write for Bulletin AG-3)



METER PROVERS
(Write for Bulletin AG-1)

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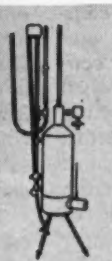
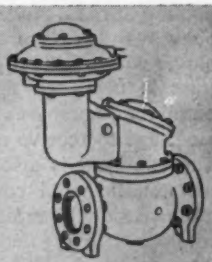


CALORIMETER
(Write for Bulletin AG-2)



CBV REGULATOR
(Write for Bulletin 50-A)

PENSION PLANS:

by James H. McGourty
Labor Relations Analyst

Part 3: Insurance Companies Offer Three Methods Of Financing

This is the last in a series of three articles on pension plans by Mr. McGourty. Part 1 was: "Issues pose problems common to employees and management." Part 2: "Trust fund method is one solution to financing problem."

ADVOCATES of the insured method of financing pension and retirement plans point out what they, with considerable justification, call the "unique and valuable advantages" of this type of financing mechanism. The advantages inherent in the insured type of retirement plan rest in its guarantees.

The retired employee is absolutely assured that his income will continue for life and the active employee knows that his accrued pension benefits are surely provided for. The employer knows that his pension obligations are fully met as they accrue and that he is completely relieved of insurance responsibility.

With the insured plan there is little reason for management to assume investment responsibilities in connection with pension reserves. Time spent on the investment problems of a pension fund by the employer could be more profitably spent on the main endeavor of the utility company.

Those favoring the insured type of plan claim that the employer with a self-administered plan assumes all of the risk of investment and future mortality uncertainties. The consulting actuary is usually selected by the employer where there is a self-administered plan and it is the employer who bears the responsibility for the accuracy and judgment of the actuarial computations.

Certain benefits, arising from the pooling of risks, are enjoyed by the company with an insured plan. The employer with a regular group annuity contract is protected against an unusual number of employees surviving to retirement age to receive retirement benefits. The company is also protected against the unanticipated costs resulting from the occasional employee or group of employees living considerably longer than expected. This is a factor to be reckoned with in the light of our increasing longevity.

The pooling of investments within the insurance company results in benefits to the company with an insured retirement plan. Proponents of the insured type of plan are quick to point out that each contract holder enjoys the benefits of all the investments of the insurance company and is not limited to the experience of the relatively small portfolio of his own pension trust.

In order to further evaluate the benefits to be derived from the pooling of investments, management should note that the net investment yield for all United States life insurance companies in 1949 was 3.04 per cent.

This yield was realized mainly in compliance with New York State law which permits insurance companies to invest in government, state and municipal bonds, high grade corporate bonds and blue chip preferred stocks. There is currently a movement by the six top life insurance companies to request permission to invest five per cent of their assets in equities. If this permission is granted, it would mean that roughly $1.1 billions could be invested in common stocks resulting in a six per cent yield to insurance companies.

The conservatism of the insurance company, a result of government regulation and their own self-interest, works to the advantage of the employer and helps maintain a sound plan and sound financing. This conservative attitude causes a more realistic appraisal of the actuarial assumptions to be adopted than is fostered by the more flexible trust fund. Ray M. Peterson, associate actuary of The Equitable Life Assurance Society, has written a booklet entitled *"Mortality Improvement and Its Effect on Pension Costs"* in which he discusses current trends in mortality, and their effect on annuity costs. This pamphlet, which deals with the relative adequacy of the several group annuity mortality experience tables in present use, could be read to good advantage by any employer considering a retirement plan of either trusteed or insured type.

Insured plans are suitable for employers with all sizes of working forces but their use by small concerns is ideal. The investment spread afforded by the pension trust of the small self-administered plan may prove to be inadequate as time goes on and interest rates decrease. Employee relations and employee morale in the small company may benefit when the plan is an insured one. This is so because the employees feel that they are on safer ground when their jobs and their future retirement are not staked on the resources of one employer.

Where differences between management and the employees rise as to the administration, or other matters concerning the pension plan, the rigid requirements of the insurance company may be of value to both groups. The insurance company, in its capacity as administrator of the plan, takes many of the decisions out of the hands of the company and thereby relieves the pressure that might be created by the requests of a bargaining union or members of a managerial group, unfamiliar with the intimate details of the pension plan, but desirous of cutting costs.

Whether the plan is an insured or a trusteed one, the benefit payments may be expected to be the same. Deaths will occur at the same rate, pre-retirement

terminations will take place and the same annuity payments will be made regardless of the type of plan employed. These actuarial factors will be the same irrespective of the plan and the benefits paid to pensioners will be the same unless an option for contingent annuitant is granted.

Two factors which do vary are expenses and investment earnings. The importance of these factors can be realized when these facts are considered. The expenses under a group annuity contract amount to 1½ per cent to three per cent of contributions. The second variable factor, investment earnings, may be viewed relative to pension costs by considering that it will take 1/25 of one per cent additional earnings for a period of about 25 years to offset an expense of one per cent of contributions. The cost of individual coverage, under an insured plan, decreases with the increase in the number of employees covered, as indicated by the chart. The Equitable Life Assurance Society, in its booklet *"The Pension Service of the Insurance Company,"* gives a very instructive comparison of expenses of the trusteed and insured plans.

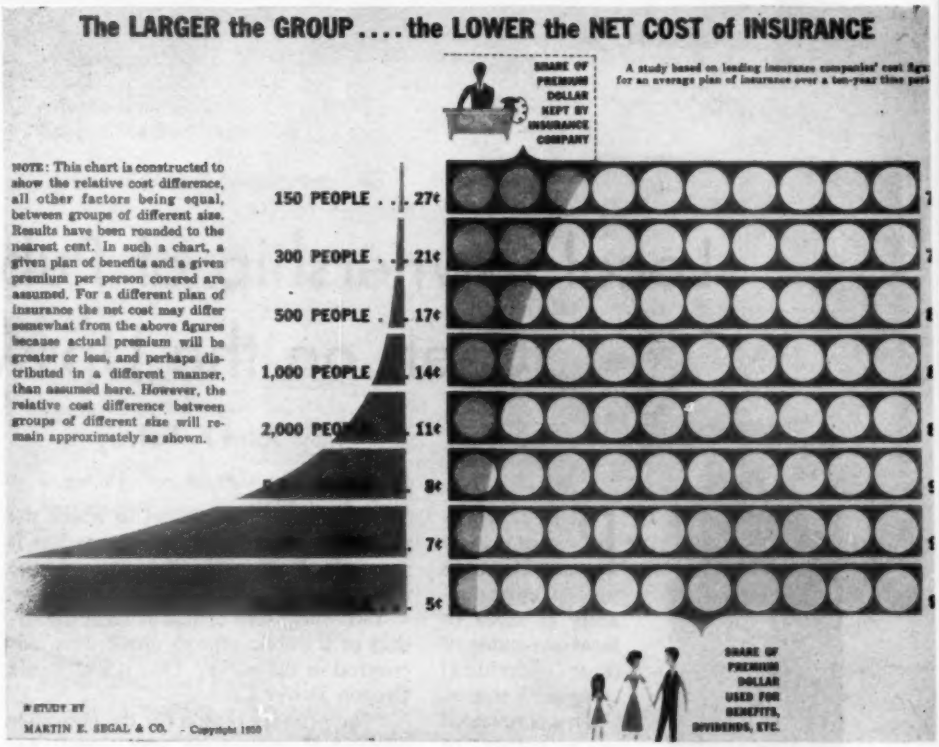
To summarize up to this point, employers who select insurance as the funding medium for their pension plans do so primarily for two reasons: (1) the insurance companies' service which includes investment of funds, an actuarial service and certain administrative duties in connection with the plan; (2) the employer may feel that his pension liability is placed on a completely paid up basis as the insurance company guarantees the payment of annuities actually purchased.

The insurance method takes the following forms, or combination of forms best suited to the needs of the company and its employees:

Individual contracts held in trust
Regular group annuity contracts
Deposit administration

Individual Contracts:

This method is most often used for groups too small to cover under a trust fund or regular group annuity form of contract. The Treasury Department discloses that the average number of employees covered under this type of contract is 49 employees. The advantages under the individual contract are that the annual premium remains unchanged during the life of the contract, and death benefits, which can be provided for economically, are appreciated by the employees. A common type of policy provides $1,000. of life insurance for every $10. of retirement benefit. In addition to pension benefits a survivor's benefit of substantial amount can be provided immediately upon the adoption of the plan.


The LARGER the GROUP . . . . the LOWER the NET COST of INSURANCE
SHARE OF PREMIUM DOLLAR KEPT BY INSURANCE COMPANY
A study based on leading insurance companies' cost figures for an average plan of insurance over a ten-year time period
NOTE: This chart is constructed to show the relative cost difference, all other factors being equal, between groups of different size. Results have been rounded to the nearest cent. In such a chart, a given plan of benefits and a given premium per person covered are assumed. For a different plan of insurance the net cost may differ somewhat from the above figures because actual premium will be greater or less, and perhaps distributed in a different manner, than assumed here. However, the relative cost difference between groups of different size will remain approximately as shown.
150 PEOPLE . . . 27¢
300 PEOPLE . . . 21¢
500 PEOPLE . . . 17¢
1,000 PEOPLE . . . 14¢
2,000 PEOPLE . . . 11¢
8¢
7¢
5¢
SHARE OF PREMIUM DOLLAR USED FOR BENEFITS, DIVIDENDS, ETC.
A STUDY BY
MARTIN E. SEGAL & CO. - Copyright 1950

This method involves the use of medical examinations. Employees who cannot pass a medical examination may be covered by annual premium annuity contracts. These limit the death benefit to the cash value of the policy. A trust is generally established as a depository for the policies, or in the case of group permanent insurance, the insurance company issues certificates to the employees. This enables both the employer and the employees to enjoy the tax advantages associated with retirement plans.

Regular Group Annuities:

The most common form of coverage for companies with 100 or more employees is the regular group annuity contract. Purchase is made each year, as a credit for the current year of service, of a guaranteed, paid up, deferred annuity. Annuity credits for service performed prior to the inception of the plan (past service credits) are purchased by the employer over a period of years, in excess of ten. When all past service credits have been purchased, the plan is said to be fully funded. With this type of contract no discount has been made for pre-retirement severance and if the employees have not been granted a vested right in the contributions of the employer, refunds will be made to the employer in the amount of 96 per cent of contributions in the event of pre-retirement termination of employment.

Premium rates are generally guaranteed for a period of five years; after that rates may be changed annually. The new rates apply to the original participants as well as to new entrants to the plan.

Mortality is discounted in advance and consequently the employer does not receive a refund if a participant dies either before or after retirement. Contributions made by the employee are returned to his beneficiary upon his pre-retirement demise.

Deposit Administration:

Some of the advantages of both the trust and insurance method can be realized by the use of the deposit administration type of insured contract. Pension contributions can be made in amounts and in accordance with a schedule which fits the convenience of the employer. Annuities for retirement are purchased at employee's retirement or termination of service. Deposit administration provides the maximum amount of flexibiilty under the insured type of pension plan.

Funds are accumulated at a guaranteed rate of interest from which amounts are taken for the purchase of annuities at retirement to cover the employee's pension. The insurance company provides the actuarial services to determine the amount of funds required to purchase the promised benefits. A considerable amount of latitude is permitted in the consideration of actuarial data; pre-retirement termination and future salary

(Continued on page 37)

Local Ownership of Public Utilities Seen on the Upswing

by John F. Falvey

John F. Falvey

PUBLIC utility company managements are preponderantly in favor of local ownership of their individual company's shares.

This is revealed in a survey of a representative group of utilities throughout the country made by AMERICAN GAS JOURNAL.

Utility executives in the ratio of approximately 15 to one expressed themselves in favor of local ownership of their shares.

It is significant, however, that where the utility companies sponsor purchase of their shares by local residents, they do so in a very different manner than back in the 1920's and in the early 1930's preceding enactment of the Public Utility Holding Company Act.

Whereas the companies formerly entered directly into the sale of their stocks, often through having district managers push the program in their respective territories, they now attain the same ends by having local investment firms or the local branches of national investment firms sponsor their programs.

An example of the method employed today is afforded by Idaho Power Co., which has nearly half of its preferred stock owned in the territory. In its recent application to the Federal Power Commission for authorization of a new preferred stock the company asked specifically that it be permitted to make the offer through the local investment firm in Boise, Idaho, so that the shares might find their way into local hands.

In fact, in the underwriting agreement covering this issue, it stated specifically that: "It is understood . . . you will use your best efforts to distribute the preferred stock to local investors."

Some idea of the extent to which the underwriter carried out this mandate is shown in the fact that 80 per cent of the issue was sold locally.

Two outspoken critics of local ownership of a public utility's stock were uncovered in the survey. One is California Oregon Power Co.:

"The primary reason for the customer ownership movement—the need for money—no longer exists," it says. "Equity money which was difficult and sometimes impossible to obtain in the financial centers is now available."

Encouraging and promoting local ownership in order to create better understanding and mutual interest between the public and industry proved unsound in the period following 1929, the management states, when the securities of many operating companies not only defaulted dividends but severely declined in market value.

Diversified Ownership

While A. S. Cummins, company President, expressed himself as unalterably opposed to any direct form of promotional sales by companies, he goes a step further in favoring local participation only to the extent that it constitutes a proper proportion of a wide geographical distribution of stock.

"In my opinion," he says, "broad diversified ownership is much more important than local ownership in itself. Such type of distribution should provide a proper ratio of customer owners, and I consider it very important that in all negotiations between companies and bankers this point be emphasized and carried out.

"During this period of expanding capital requirements the need for a broad stable market is of fundamental importance. Too great concentrations of stock could prove unhealthy, endanger future programs, and prove costly. Long range, soundly conceived planning, assuring the maintenance of proper capitalization ratios, is essential to basically strong financial structures and low cost money."

The changed attitude of utility company managements in foregoing direct sponsorship of sale of their shares locally, and of having the local investment firm do the sponsoring, is aptly expressed by Albert F. Tegen, President of General Public Utilities Corp.

Mr. Tegen speaks from experience of this situation in that his company is successor to Associated Gas & Electric Co. whose president, the late H. C. Hopson, was perhaps the leading advocate of local stock ownership effected through strong merchandising methods.

Mr. Tegen says: "Of course we do not object to having customers of the subsidiaries purchase shares of GPU stock. On the other hand we will not be a party to a program which seeks to induce customers to acquire shares. The history of the past ought to be vivid enough to forestall any such effort.

"There are many situations where a stock will sell at less than the offering price and no amount of 'good faith' or 'the market you know' can explain away such depressed price to an unwilling stockholder. I should think that a company which had actively promoted customer ownership would be embarrassed when stockholders have reason to complain about the realization price as against the price paid. Why assume the responsibility of such explanation? We are not impressed with the argument that customers who are stockholders can be of substantial help to a utility in case of regulatory difficulty. We think the business of being a customer and the business of being an investor are not related and that any effort to perform a marriage ceremony could very well have substantial adverse effects. It has happened before. We repeat that we do not think that we have the wisdom to overcome the difficulties which

customer ownership programs ran into during the last 20 years and so will have no part of them.

"One other factor must be considered. Companies which operate substantially in large urban areas generally find a substantial investment demand within their areas. Other companies operate in areas where there is no investment market and to try a customer ownership program in such cases would seem most unwise to us."

All Problems Are Local

The arguments of the main body of public utility managements in favor of having a large segment of their companies' shares held locally in the service areas may be summarized as follows. A large local ownership makes for closer and better stockholder-customer relationship, and for a more intelligent understanding of local problems affecting the company, facilitates proxy solicitations and dissemination of information on matters pertaining to operations of the company, improves public relations, strengthens the company's prestige in the community and is beneficial to the utility and to shareholders alike.

"We believe," says Murray F. Gill, President of Kansas Gas & Electric Co., "that the public generally has a more kindly feeling towards a locally-owned institution than they do to one having absentee ownership. If the entire monetary requirements of this company could be obtained locally, we would endeavor to sell all of our stocks on the local market; but since this cannot be done, we endeavor to have as great a per cent of home-ownership as is possible."

Stocks traded over the counter lend themselves more readily to success of any local ownership program than do listed securities, in the opinion of a large number of utility officials, because the greater opportunity for profit by the investment firms gives it a more impelling incentive for handling them.

Supporting this view, but with a side note of caution, is Avery R. Schiller, President of Public Service Co. of New Hampshire. He states that: "Our experience with local and customer ownership of securities convinces us that it is a good thing. To be sure, there is a stockholder complacency which continues as long as dividends are holding or rising and received regularly. What this reaction might be if things went the other way, we do not know because we have had no experience.

However, we know that many of our stockholders have seen income from other investments and interest on savings deposits fall off considerably so that they are at least partially conditioned for such a possibility in connection with ownership of our shares. In saying this I do not mean to suggest that there is any present intent to decrease dividends but the possibility cannot be ignored in exploring the question of the advisability of local ownership."

Pioneers of the policy of sponsoring "customer-ownership," Pacific Gas & Electric Co. has 72 per cent of preferred stockholders and 48 per cent of common stockholders within the State of California.

"There is little question," the company says, "that the strong backlog of local ownership thus built up has been of definite value to the company from a public relations view-point. The plan also provided a most effective and relatively inexpensive method of securing capital, in good times and bad, over a period of more than a quarter of a century. A prerequisite of successful financing through this channel was, of course, the sale of a well protected investment."

Southern California Edison Co. during the 1920s strongly sponsored local ownership by active direct sales of its stocks to employees and to the general public with particular emphasis on consumers. The management still feels that there is substantial value in maximum local ownership of its equity securities.

Through obtaining exemption from competitive bidding for the last common stock issue of May 1949, the company was able to promote purchase by Californians of more that 60 per cent of the total issue. It did this by having every investment banking house in the state participate in the syndicate so as to permit allocation of more than three-fifths of the issue throughout the state. "If we had not secured exemption from

(Continued on page 47)

COMPANY	LOCAL OWNERSHIP % of Stock	% of Stockholders
Atlanta Gas Light Co.	(s) 59%	62%
Bangor Hydro-Electric Co.	39%	
	(s) 67%	
Cleveland Electric Illuminating Co.		
Preferred Stock*	34%	20%
	(s) 50%	
Consolidated Gas Electric Light & Power Co. of Baltimore		
Preferred "B"	50%	
" "C"	37%	
Common	26%	
Idaho Power Co. Preferred*	49%	
Kansas Gas & Electric Co.		
Preferred	(s) 61%	78%
Common	† 22%	25%
Louisville Gas Electric Co.	(s) 59%	63%
Minnesota Power & Light Co.		
Preferred*	47%	56%
New England Electric System	(s) 42%	40%
Pacific Gas & Electric Co.		
Preferred		(s) 72%
Common		48%
Philadelphia Electric Co.	56%	
Potomac Electric Power Co.	50%	
Public Service Co. of Colorado		
Preferred		50%
Common		22%
Public Service Co. of New Hampshire		
Preferred	(s) 52%	75%
Common	38%	44%
San Diego Gas & Electric Co.		
Common	55%	
"	(s) 81%	
Southern California Edison Co.		
Common	57%	
Wisconsin Power & Light Co.		
Preferred	(s) 85%	
Common	† 30%	

(s) Within the State.
* Company under holding company control until recent years. Common stock held publicly for too short a period to permit absorption into service area.
† Divested from holding company control only recently.

Index of Yields : Selected Utilities Stocks

	July 1950	June 1950	May 1950	Apr. 1950	Mar. 1950	Feb. 1950	Jan. 1950	Dec. 1949	Nov. 1949	Oct. 1949	Sept. 1949	Aug. 1949
Natural Gas Transmission Companies	5.76%	4.86%	4.70%	4.77%	4.57%	4.83%	5.02%	4.75%	4.85%	5.15%	5.25%	5.38%
Natural Gas Transmission & Distribution Companies	5.79	5.29	5.11	5.14	5.19	5.26	5.23	5.26	5.58	5.61	5.73	5.62
Manufactured & Mixed Gas Companies	5.76	4.98	4.66	4.77	4.71	4.75	4.62	4.75	4.94	5.07	5.16	5.40
Class "A" Electric Companies	5.64	4.94	5.13	5.24	5.15	5.38	5.40	5.48	5.49	5.53	5.58	5.74
Class "B" Electric Companies	6.41	5.58	5.30	5.37	5.42	5.37	5.47	5.68	5.77	5.96	5.72	5.89

Method of Compiling Index of Yields

This is a straight arithmetical index of comparative yields obtainable on a selected group of gas and electric utility industry common stocks.

The companies comprising this index have been selected by the AMERICAN GAS JOURNAL as providing a representative cross-section of each industry, from the standpoint of geographical diversification and of the relative importance of the individual companies in their areas.

No effort has been made to weight the average to give effect to changes in capitalization or in dividend rates because the yields afforded on the issues reflect such changes. The index is designed to show the rate of return and not necessarily market movements on the stocks comprising it.

The companies used in compiling this index are:

Natural Gas Transmission Companies: El Paso Natural Gas Co.; Northern Natural Gas Co.; Panhandle Eastern Pipe Line Co.; Southern Natural Gas Co.; Tennessee Gas Transmission Co.

Natural Gas Transmission and Distribution Companies: Columbia Gas System, Inc.; Consolidated Natural Gas Co.; Lone Star Gas Co.; Oklahoma Natural Gas Co.; Pacific Lighting Corp.

Manufactured and Mixed Gas Companies: Bridgeport Gas Light Co.; Brooklyn Union Gas Co.; United Gas Improvement Co.; Peoples Gas Light & Coke Co.

Class "A" Electric Companies: Boston Edison Co.; Commonwealth Edison Co.; Houston Lighting & Power Co.; Southern California Edison Co., Ltd.

Class "B" Electric Companies: Dayton Power & Light Co.; Hartford Electric Light Co.; Pennsylvania Power & Light Co.; Public Service Co. of Colorado; San Diego Gas & Electric Co.

CONFUSION breeds liquidation" is the well-founded market opinion which might best be cited to explain the recent sharp decline in share prices and the consequent heavy increase in the yield return obtainable on the stocks comprising the AMERICAN GAS JOURNAL index.

If there is any greater confusion anywhere than is now evident both in Washington and in the utility markets, the writer fails to see it.

So great has been the unsettlement created by events in Korea that the market for utility stocks, as measured by the averages, in less than three weeks has lost three-fifths of the gain so painstakingly taken over a year to accomplish.

As a result four of the five groups in the AMERICAN GAS JOURNAL index show average yields placed close to six per cent, while the figure for Class "B" or secondary electric utilities is approximately 6.4 per cent.

An immediate effect of the sharp decline in share prices will be to cause utility managements to defer, possibly for some time, any thought of financing property expansion through issuance of equity securities. This is particularly true of the natural gas branch of the industry where expansion will be greater, if anything, than heretofore.

But while the need for funds is substantial, natural gas companies of which the writer has immediate knowledge have indicated that they will raise the necessary funds temporarily through bank loans, which they will fund later through issuance of debt in the event the market for common stocks has not improved in the interim.

Columbia Gas System, Inc., recognized this threat to favorable financing when it filed a registration statement with the Securities and Exchange Commission on June 7 for selling $90 million face value of new bonds. Of this sum about $9 million will be left for expansion after the balance of old debts has been retired and expenses of the refunding have been met.

In making this filing Columbia said it was doing so more or less merely to be ready to open competitive bids on this issue on August 1 if the security markets are propitious at that time.

The company does not need the money now, it says, but it felt that it was smart to file so as to be ready when conditions are favorable. If the market is not receptive to the issue on August 1, the company will merely keep deferring the time for opening bids.

Mid-West School & Conference To Be Held Sept. 14-15

The 27th Gas School and Conference of the Mid-West Gas Association will be held at Iowa State College, Ames, on September 14 and 15.

Larry Shomaker, general chairman, and Amos Abbott, program chairman, advise that plans are virtually complete. A comprehensive program of prepared papers and discussion topics of interest to gas operators is being prepared. This program will cover problems of general interest, with separate sectional meetings for distribution, utilization, metering, and production sections, to permit discussion of special problems.

This year's servicemen's school will cover operation and servicing of gas fired laundry dryers. The school will be similar in presentation to the Servel air-conditioning school which was so successful last year. It will be a shirt-sleeve and overall affair, designed for servicemen and their supervisors.

Italians Place Large Order For L-P Gas Equipment

Virgil Stark

North American Petroleum Gas Corp. has obtained a contract from an Italian concern, Pibigas, to supply all the equipment for 36 propane stations in Italy, according to Virgil Stark, President.

Pibigas has developed a fast growing bottled gas business, with 150,000 accounts now on the books. Recently it combined interests with Italgas, which has franchises for gas distribution in 40 Italian cities including Rome, Torino, Florence and Venice.

Propane and butane will be extracted from natural gas at a rate of 15,000,000 gallons per year, and it is expected that the refinery yield will amount to another 25 million gallons. The consumption of propane and butane in Italy was only 7 million gallons in 1949.

The order to the North American Petroleum Gas Corp. includes 36 tanks of a total capacity of 400,000 gallons, 59 compressors and pumps, 12 automatic dispensers, gas analyzers and special accessories. It is said to be the largest order for propane bottle filling equipment to be shipped from this country to Europe.

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*Patent Pending

Higher Court Decisions on Gas Industry Involve Rates, Labor and Liability

by Leo T. Parker

Attorney at Law, Cincinnati

THERE have been several outstanding higher court decisions on different subjects of law in which gas corporations were involved during the past few weeks.

Retroactive Gas Rates Void

Considerable discussion has arisen from time to time over the question: Can gas rates fixed by the public service commission be made to operate retroactively?

According to a recent higher court the answer is no.

Another important point of law, established by a recent court, is: A public service commission when fixing gas rates acts in a quasi legislative capacity. Hence such rates are fixed for the future, and the commission is without power to make them operate retroactively.

For example, in Georgia Public Service Commission v. Atlanta Gas Light Co., 55 S. E. (2d) 618, the Public Service Commission issued orders requiring the Atlanta Gas Light Co. to reduce its gas rates. Also, the commission ordered the gas company to make *retroactive* adjustments and refunds to customers for gas used and paid for at higher rates during the past several months.

In subsequent litigation the higher court held these orders invalid and said:

"If after fixing a rate which the commission determines to be just and reasonable, it decides that the rate is unreasonable or unjust, it has the right at any time to revise or amend its rulings or orders but these revised orders look to the future, and cannot be applied retroactively."

Also, this court held that a suit by a gas company against a public service commission is not a suit against the state prohibited by the eleventh amendment to the Constitution of the United States, although it is alleged and charged that the commission, in fixing a rate, issuing an order, or assessing a penalty, has acted illegally or abused its authority or violated the constitutional rights of the public utility.

The Supreme Court of the United States has often held that where a public service commission prescribes rates which the gas company claims are so low that its property will be confiscated, the *state* must through a Judicial tribunal determine both law and facts, otherwise the order would be void because in conflict with the due-process clause of the fourteenth amendment. See Young, 209 U. S. 123; Missouri Co. v. Tucker, 230 U. S. 340; and Ohio Valley Co. v. Ben Avon Borough, 253 U. S. 287.

For comparison, see Farmers Commission v. Union Co., 283 N. W. 498. This court held that a state statute permitting the Public Service Commission to award reparations to be paid by a public utility to a consumer does not authorize the commision to retroactively condemn as unlawful a rate or charge "previously established." The court said:

"It seems quite apparent to us that the commission is without authority to set aside a rate previously fixed by it on the ground that it is unreasonable as now viewed and proceed to grant reparations."

Service Is Delayed

According to a recent higher court a gas company which delays emergency service on defective gas burning appliances is directly responsible and liable for subsequent injuries caused by explosion of gas. This is so, although another's negligence also contributes to the injury.

For example, in Rulane Gas Co. v. Montgomery Ward & Co., Inc., 56 S. E. (2d) 689, the testimony showed facts, as follows: A property owner named Reis contracted with the Rulane Gas Co. to install a gas heater in his dwelling. The heater was purchased by the gas company from Montgomery Ward and Co., Inc. It so happened that the heater was not equipped with proper automatic cut-off valve which would have stopped the flow of gas to the heater when the pilot light was out. Fourteen months after the heater was installed the pilot light went out and the cut-off valve failed to close. An explosion resulted which caused considerable damage to the dwelling and death of Reis.

Reis' dependents sued the Rulane Gas Co. for damages. The higher court held the gas company liable for $25,000 damages.

Then the gas company sued the Montgomery Ward alleging that its negligence in supplying a defective heater was the direct cause of the explosion. The testimony showed that after Reis had notified the gas company that the pilot was out and gas continued to flow into the heater, the company's employees delayed service 14 hours, and in meantime failed to instruct the householder to cut off the gas to the pilot light.

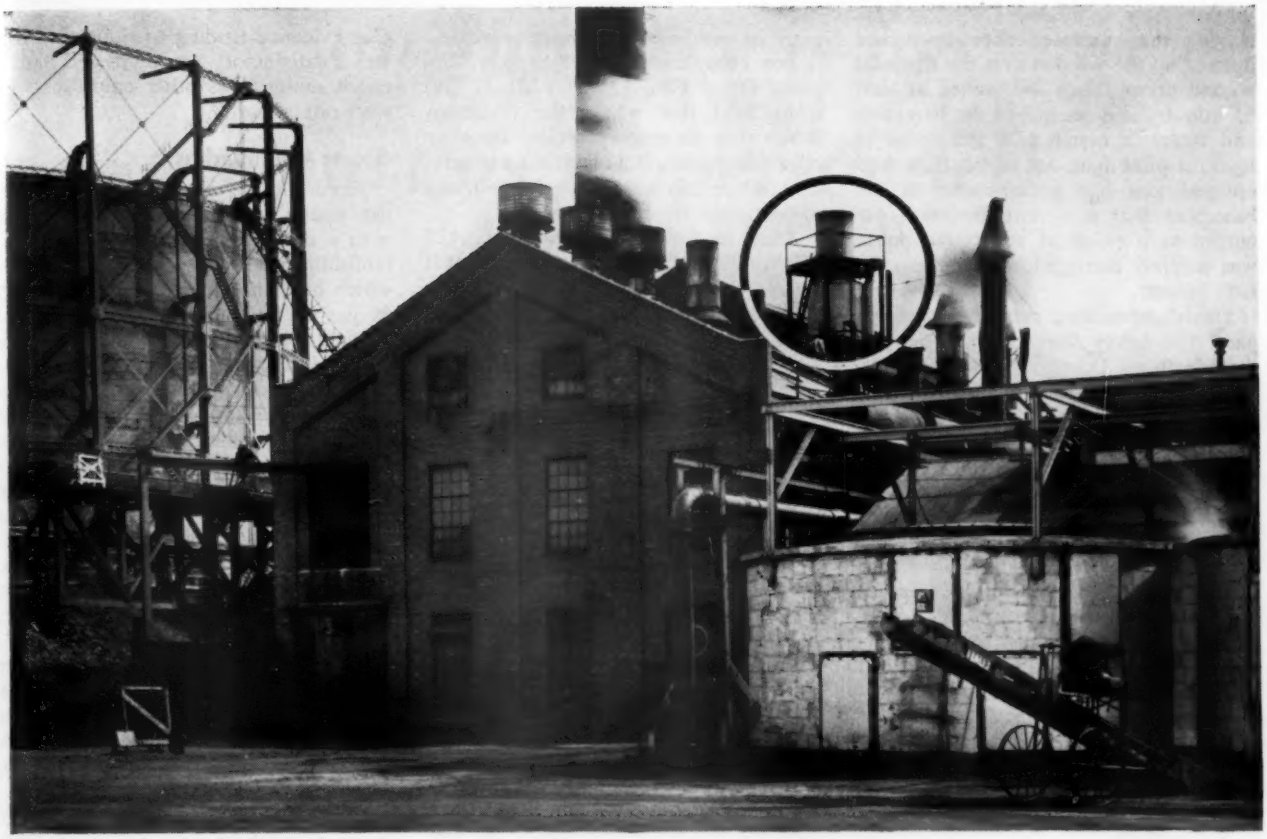
In view of this testimony the higher court refused to hold the Montgomery Ward liable, and said:

"While the heater was not an inherently dangerous instrumentality if properly constructed and handled, yet it was one capable of causing injury if the safety devices were defective and failed to operate. . . . The evidence is insufficient to warrant the holding that the negligence of Montgomery Ward and Co. proximately contributed to the fatal injury for which recovery has been had."

Jury Must Decide

Recently a higher court held that *only a jury* may decide whether a gas company is liable in damages for injuries or death of a gas consumer or user, resulting from explosion of gas.

For example, in Atlanta Gas Co. v. Davis, 56 S. E. (2d) 140, the testimony showed facts, as follows: The Atlanta Gas Co. installed a gas water heater in the basement of Mrs. Davis' house. For several months the gas company serviced it from time to time. One day she discovered that the pilot light on the gas water heater was not working and she turned the control lever to the "off" position, opened the basement window, went up the steps to the main floor,



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leaving the basement door open and opened all the windows on the first and second floors. Then she waited at least 15 minutes and re-entered the basement and struck a match and attempted to light the pilot light, but so much gas had escaped and had accumulated in the basement that a violent explosion occurred as a result of which the house was severely damaged, and she was fatally burned.

Davis' dependents sued the gas company for heavy damages and alleged that death of Davis was due to negligence of the gas company's employes in servicing the heater.

The counsel for the gas company contended that Davis' death was due to her negligence in attempting to light the pilot without notifying the gas company.

The higher court refused to render a decision in the case and explained that as to whether Davis exercised care necessary for her own safety and whether the gas company's negligence proximately caused her death were questions which a jury must decide, after considering all testimony.

Hence, if the jury decides that Davis was careless and failed to use reasonable care to protect herself against injury, the gas company will be relieved from liability.

Bonus Vs Salary

Considerable discussion has arisen from time to time over the question: Is a gas company liable under a *promise* to pay its employes increased wages? The answer is yes, if the testimony shows that the employe relied upon the promise and did not voluntarily quit the employment.

For example, in Pyeatt v. El Paso Natural Gas Co., 213 Pac. (2d) 436, the testimony showed facts, as follows: The El Paso Natural Gas Co. issued and published a notice advising all its employes that in order to attract and retain skillful labor in its plant that it had applied to the National War Labor Board for a wage increase which, if granted, would become effective at once. Although the gas company applied to the federal board for an increase, the application was denied. Later the board issued an order under which the gas company could have increased wages of its employes but it did not do so.

Certain employes sued the company to recover pay wage increases allegedly due in view of the above mentioned notice sent by the company to its employes.

As to ordinary employes who had in the meantime kept their employment, the higher court refused to render a favorable verdict, saying that the testimony did not prove that the employes continued in services of the gas company in *anticipation* of wage increase.

For comparison, see Knapp v. Imperial Oil, 4 Cir., 130 F. (2d) 1. This court held that where the testimony shows that an employe relied upon an offer of a bonus, if he continues in service until certain work is performed, and so continues, he may recover.

Also, in Scott v. Duthie Co., 125 Wash. 470, the higher court held that if the employe terminates his services before the bonus is payable he is *not* entitled to it.

Compensation Vs Damages

Modern higher courts consistently hold that an injured employe who is within the scope of the state workmen's compensation act cannot, in addition to receiving compensation, sue and recover damages from the employer.

For example, in Pell v. New Bedford Gas & Edison Light Co., 90 N. E. (2d) 555, the testimony showed that one Pell was employed for many years by the company as an office and stock record clerk. The testimony showed that the "lighting conditions" at her place of employment were insufficient or inadequate, resulting in injury to her eyes. Pell sued the company for damages.

The higher court held that the injury "rose out of and in the course of" her employment, and she was entitled to receive compensation under the state workmen's compensation act.

Hence this court held that Pell could not sue and recover damages from the New Bedford Gas and Edison Light Co.

Also, see Mercier's Case, 315 Mass. 238. This court held that poisoning, blindness, pneumonia, or the giving way of heart muscle induced by the employment are well recognized personal injuries for which the employe may recover compensation under the state workmen's compensation act.

Unfair Labor Practices

Recently a higher court held that the National Labor Relations Board is the *sole judge* of facts, witnesses' credibility, weight of evidence, and inferences from circumstantial and conflicting evidence in proceedings on unfair labor practices.

For example, in National Labor Relations Board v. Minnesota Mining & Manufacturing Co., 179 F. (2d) 323, the controversy arose out of an attempt by the United Gas, Coke and Chemical Workers of America to unionize the employes at a plant.

In this case the higher court approved the Board's decision that lay-off of a union president was unlawful and discriminatory. The court said:

"We think that there was evidence in the record sufficient to sustain the finding of the board that the lay-off of Robert Ball was discriminatory. Ball was president of the Union. There was also evidence tending to show that Ball was a satisfactory workman and had as much seniority as other employes who were not laid off."

Courts Are Powerless

According to a recent higher court the courts are powerless to interfere with a decision of a city council in establishing gas rates for a gas company which holds a franchise for distribution of gas in the municipality. This is so particularly if state laws give the council this authority.

For example, in Pell v. City of Marshalltown, 40 N. W. (2d) 53, it was shown that a state law gave municipal councils the power to regulate and fix the rents or rates of water, gas, heat, and electric light or power; to regulate and fix the charges for water meters, gas meters, electric light or power meters, or other device or means necessary for determining the consumption of water, gas, heat, electric light or power.

In subsequent litigation the higher court held that so long as the gas rates adopted by the council were reasonable and not confiscatory, the courts are powerless to modify the rates. The court said:

"The function of the courts is merely to ascertain whether the power has been carried beyond the constitutional limits so fixed. . . . There was no complaint of the rates being confiscatory or unreasonable."

For comparison, see Cedar Rapids Co. v. City of Cedar Rapids, 91 N. W. 1081. This court held that it is within the province of the public service commission to prescribe a schedule of rates. Hence this power necessarily *implied* the commission's right to exercise a certain range of discretion, and so long as this discretion is kept within the authority conferred by the legislature it is the duty of the courts to refrain from interference with the rates adopted.

Election Statutes

Modern higher courts consistently hold that only where a state statute is ambiguous may courts interpret it. Hence where the meaning of a statute is plain, the courts will not search for its meaning beyond its express terms and words.

This law is applicable to all state statutes, including election laws.

For example, in Iowa-Illinois Gas & Electric Co. v. City of Bettendorf, 41 N. W. (2d) 1, it was shown that a state statute permitted a city to annex unplatted adjacent territory, but required the annexation proposition to be submitted to voters "at any regular election."

A city council adopted a resolution

(Continued on page 47)

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THE GAS INDUSTRY'S MID-CENTURY PAGEANT OF PROGRESS

Here under one roof will be assembled a display of the finest appliances, machinery and methods. Here the keenest minds will discuss outstanding problems confronting you in the face of the Industry's greatest expansion program. Here *is* the Gas Industry in all its might and glory—a source of inspiration, an education for all.

GAS APPLIANCE MANUFACTURERS ASSOCIATION, INC.

News of the Gas Industry

F. M. Banks Elected President of Southern Calif. Gas Co., as F. S. Wade Retires

F. S. Wade

F. M. Banks

L. M. Edwards

F. M. Banks became President and general manager of the Southern California Gas Co. on August 1, following the resignation of F. S. Wade, who retired under the company's uniform pension plan. LeRoy M. Edwards, vice-president and special counsel, also retired.

Mr. Edwards also resigned as vice-president and general counsel for Southern Counties Gas Co., and as vice-president and general manager of Pacific Lighting Gas Supply Co., both affiliates of Southern California Gas Co.

Both Mr. Wade and Mr. Edwards continue as directors of the company, and Mr. Wade was elected chairman of the board of directors.

Mr. Edwards will engage in private practice of law and at the same time will be retained by Southern California and Southern Counties companies as special counsel.

While relinquishing entirely any active direction of the operations of the company, Mr. Wade will maintain offices in the gas company building and will be available in an advisory capacity.

The careers of Mr. Wade and Mr. Edwards in the utility business in Southern California have run parallel for more than 40 years, and to them go a large share of credit for the development of the natural gas business in the Southland. Under their leadership the combined natural gas systems serving Southern California were developed into the world's largest, supplying nearly 1,500,000 meters and representing an investment of some $300,000,000. Eventually, when California sources were proving inadequate to meet increased demands, Mr. Wade and Mr. Edwards with their associates took the initiative in securing additional natural gas supplies from Texas through the now famous "Biggest Inch", a $100 million project.

Both men began their utility careers almost simultaneously in the former Los Angeles Gas and Electric Corp., Mr. Wade as a chemist in 1905, and Mr. Edwards as an attorney in 1907. In 1912, Mr. Wade moved to the then only recently organized Southern Counties Gas Co., where he became superintendent. Mr. Edwards left the Los Angeles company the same year to enter private practice, specializing in the utility business, and three years later he became general counsel for Southern Counties.

By the time Mr. Wade was elected President of the company in 1928, the entire system, extending from Santa Ana to Santa Barbara, was distributing natural gas to its customers.

Mr. Edwards, in the meantime, had organized a pipe line company. As President and general manager of the Industrial Fuel Supply Co., later to be merged with other pipe line companies into the Pacific Lighting Corp., he promoted the development of a transmission system which tapped most of the important sources of natural gas supply in the southern part of the state. His pipe line companies were affiliated with Southern Counties Gas, and with the merging of the Los Angeles Gas & Electric Corp. and the Southern California Gas Co. and the affiliation of the latter company with Southern Counties in the 30's, he became a vice-president and counsel of both the distributing companies, as well as general manager of the pipe line company.

In 1939, following the retirement of A. B. Macbeth as President of Southern California Gas Co., Mr. Wade became President and general manager of that company and Southern Counties Gas Co. as well; and he held the top executive posts in the two companies for the next eight years. He relinquished his position with Southern Counties in 1947, but retained the presidency and general man-

(Continued on page 45)

R. W. Ducker

R. E. Ritchie

Ducker and Ritchie Elected VP's of Stone & Webster

Robert W. Ducker and Russell E. Ritchie have been elected vice presidents of Stone & Webster Service Corp.

Mr. Ducker joined the company in 1944 after a two year association with the office of Petroleum Administrator for War, first as chief of the Natural Gas Section and later as Assistant Director of Natural Gas and Natural Gasoline. Prior to the war, he had been associated for many years with the Oklahoma Natural Gas Co.

Mr. Ritchie has been continuously associated with the Stone & Webster organization since his graduation with an engineering degree from the University of Wisconsin in 1925.

In recent years both men have been active in advising clients of the Stone & Webster Service Corp. on problems incident to the development and operation of manufactured and natural gas systems.

Euler and Sutherland Promoted By Pacific Gas & Electric

Norman R. Sutherland, formerly vice-president and assistant general manager of Pacific Gas and Electric Co., was elected vice-president and general manager on August 1, succeeding W. G. B. Euler, according to an announcement by J. B. Black, President.

Mr. Euler was made executive vice-president of the company. He will assist the President in the general supervision of the company's affairs and will direct the purchasing department and the department of general construction, which is now completing the company's $800,000,000 post-war expansion program.

Mr. Euler and Mr. Sutherland have served in the Pacific Gas and Electric Co. organization for 40 years and 37 years, respectively.

Pension Plans

(Continued from page 27)

increases may be discounted. With deposit administration the level premium method of payment (AMERICAN GAS JOURNAL p. 13, July 1950) is permitted thereby giving effect to probable future changes in earnings as well as mortality, termination, dividends, etc.

The insurance company assumes no responsibility for the adequacy of the fund from which is drawn the sums to purchase retirement annuities. The insurance companies' obligations under this form of contract are: (1) to furnish the actuarial service; (2) to accumulate the fund at a guaranteed rate of interest; (3) to guarantee the annuity rates to be used; and (4) to guarantee the payment of purchased annuities.

The employer is able to estimate his costs fairly accurately as a partial cost ceiling can be assured to the extent of funds deposited. The premium rates applied in calculating the required amount are guaranteed at the time of deposit in the fund. The insurance company guarantees that each dollar deposited in the first five years will earn interest at a specified rate and is entitled to purchase annuities at a maximum guaranteed premium. However, after the first five year period the insurance company has the right to alter interest and premium guarantees from year to year. When such alterations are made, they apply only to future dollars deposited.

The deposit administration type of contract, because of its flexibility, lends itself to a variety of benefit formulae. Benefits may be based on the earnings of the last ten years' service, average earnings during employment, etc.

Funds for this type of contract may be accumulated either by the insurance company or the employer may wish to establish a trust fund for the purpose. The actuarial services of the insurance company are generally available in either case or the employer is at liberty to select his own consulting actuary.

Collective Bargaining Contract

Most of the major insurance companies interested in this type of business have originated what might be called a collective bargaining type of deposit administration contract. Both the Equitable and the John Hancock have made this type available to industry. There are minor differences in each company's deposit administration contracts but since these differences are minor we will not draw a line of distinction at this time between these two collective bargaining contracts. The demands of bargaining unions and the desire of management to include social security benefits in the

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pension formula fostered this new development.

Briefly, here are some of its features. It is an immediate annuity contract with annuities purchased upon retirement to cover the pensions provided for in the collective bargaining agreement. Only non-contributory plans have used this type of contract. The employer may engage in such advance funding (or none) as he desires with payments made to the deposit administration fund. As far as the employees are concerned, the insurance company is obliged to pay annuities to retired employees for whom annuities are purchased. There is no reference made to advance funding. This is in contrast to the regular deposit administration contract where the employees are told of advance funding and certain minimum advance funding is done. The insurance companies' actuarial services are available to the employer. The DA fund is credited in the amount of the reduction where the contract provides for an automatic reduction in benefits as Federal Old Age Benefits are increased. The unapplied amount in the DA fund could be transferred to a trustee, subject to a five per cent expense and liquidation fee if the benefits of the plan were so changed that the insurance company decided it would not be practicable to continue to provide for the purchase of retirement benefits or, if as a result of union negotiations or Government legislation, the employer were required to participate in a substitute plan under which he could not take credit for benefits provided under the insurance company DA contract. The insurance company reserves the right to transfer funds, in these cases, over a period of time, not in excess of ten years. This type of contract is available to groups of less than 500 employees subject to the insurance company's consideration of questions such as the number of employees eligible for retirement during the first five years of the contract, the extent of advanced funding contemplated, etc.

Correction:

On page 12, column one, paragraph three, of Pension Plans (Part 2) July AMERICAN GAS JOURNAL the words "latter schedule" should read "ladder schedule."

Selas Issues New Bulletin On 'Flo-Scopes'

A new bulletin describing Flo-Scopes, air and gas flow rate indicators, has just been issued and is available from the Selas Corp. of America, Philadelphia.

Flo-Scopes, individually calibrated for the characteristics of the gases to be measured, are used with combustion equipment when accurate data about gas-air mixtures are required.

Sprague Meter Celebrates 50th Anniversary

President F. Leslie Fairchild, of Sprague Meter, speaking over WICC during Open House. Tom Manete, union chief steward, is at left.

More than 2000 employees and their families attended an "Open House" party sponsored by the Sprague Meter Co., Bridgeport, June 26, held as part of the firm's 50th anniversary celebration.

Civic, industrial, educational leaders from the surrounding area, editors of various technical journals and representatives from many utilities also attended the affair.

Held at the main plant in Bridgeport, the anniversary program included a tour of the plant, an outdoor luncheon and contests for adults and children for which more than 50 prizes were awarded.

An on-the-spot radio program over WICC from the company grounds featured F. Leslie Fairchild, President; Elmer J. Werthman, vice-president; Edith L. Ballou, supervisor of sales; and H. Ward Cheeseman, senior salesman, who has the longest employee service record. May Bradshaw Hayes, New England radio commentator, conducted the interviews.

During the plant tour the specialized machines made for producing Sprague meters were pointed out.

The Sprague Meter Co. was founded in Bridgeport 50 years ago by Henry H. Sprague.

The June issue of the company's employee magazine, *Sprague Metered News*, was a 50th anniversary edition. Among other things it pointed out the following "firsts" in the company history:

"First to make a meter with a single stuffing box (1901).

"First to manufacture a cast iron meter that would measure accurately both manufactured and natural gas (1901).

"First to develop the removable valve cap, simplifying regular maintenance (1916).

"First to enclose the index driving movement, adding the sole advantage of the closed top meter to the many advantages of our open top meters (1921).

"First to develop a meter for measuring bottled gas (1929).

"First to make a meter that could be adjusted without disassembly through the development of a double adjusted main movement (1929).

"First to employ semi-chrome leather, guaranteeing longer diaphragm life (1930).

"First to manufacture a removable orifice for regulators, providing more economical maintenance (1931).

"First to manufacture (and remains the sole producer of) a combination meter and regulator (1937).

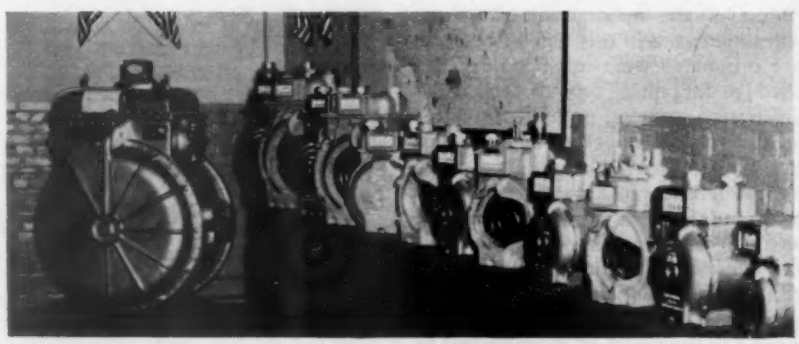
"First to manufacture an aluminum alloy meter (1946)."

Calorimeters Are Installed In California

Fifteen recording calorimeters were installed throughout the system of the Southern California Gas Company last month to comply with the California Public Utilities Commission interim rate decision establishing rate schedules based on specific heating values for natural gas supplied in various areas served by the company.

In order to comply with the requirements of the interim decision, the company must now determine and record the quality of gas delivered to customers according to rate schedule areas whereas previous rate schedules were not specifically tied in with gas quality.

Under the interim rate order, the company's entire service area has been segregated into districts in which the average gas quality will be reasonably constant and in accord with the Btu base stated by the Commission.



One of several exhibits at the Sprague Meter 50th anniversary Open House.

Gas Department Changes Made By Public Service

George H. Blake, President, Public Service Electric and Gas Co., announced the following changes in organization in the gas department of the company effective July 1:

Charles R. Dewhurst, from assistant engineer of construction to superintendent of industrial relations.

Jean H. Miller, from superintendent of distribution, Trenton district, to assistant engineer of construction, general office, replacing Mr. Dewhurst.

Gerald E. Loustalot, from assistant superintendent of distribution, Trenton district, to superintendent of distribution, Trenton district, replacing Mr. Miller.

Joseph S. Hopkins, from superintendent of distribution, Newark district, to assistant engineer of distribution, central division.

John A. Lane, from superintendent of distribution, Summit district, to superintendent of distribution, Newark district, replacing Mr. Hopkins.

James C. Costello, from assistant superintendent of distribution, Summit district, to superintendent of distribution, Summit district, replacing Mr. Lane.

Frederick C. Scofield, from assistant superintendent of distribution, Orange-Montclair district, to assistant superintendent of distribution, Summit district, replacing Mr. Costello.

William L. Heuser, from general foreman, Newark district, to assistant superintendent of distribution, Newark district.

William Maurer, from assistant general foreman, Newark district, to general foreman, Newark district, replacing Mr. Heuser.

Announce Winners of CP Range Demonstration Contest

The Home Service Committee of the American Gas Association has announced the winners of the contest for home service representatives for the best demonstrations of an automatic gas range built to "CP" standards. The purpose of the contest was to bring to home service representatives the greater possibilities of demonstrating the features of the automatic gas range. The "CP" manufacturers group of the Gas Appliance Manufacturers Association contributed 29 prizes totaling $500 for the contest. The winning demonstrations will be distributed by GAMA in printed form.

The jury of awards named the following winners: First prize of $100—Isabel McGovern, home service director, Minneapolis Gas Co.; second prize of $75—Margaret Bauer, home service representative, Rochester Gas & Electric Corp.; third prize of $50—Lois Payne, home service director, Westchester Lighting Co., Mt. Vernon, N. Y.; fourth prize of $25—Lucille E. Boettcher, home economist, Laclede Gas Co., St. Louis.

Twenty-five prizes of $10 each were also awarded.

More Texas Gas For L. A.

A 31-mile section, from Moreno to Whitewater, of the 82-mile Texas pipe line loop being jointly constructed by Southern California and Southern Counties Gas Companies is now in operation, making possible maximum deliveries of 405 million cu. ft. per day to the Los Angeles metropolitan area.

The new section of 30-inch line was purged and connected in the latter part of June after undergoing two tests at 125 psi and 500 psi, with two line walking patrol inspections after each testing. The entire $5,000,000 line is expected to be completed and in operation by Oct. 1.

Vulcan Offers New Catalog On Coated Fabrics

Vulcan Proofing Co., makers of rubber and synthetic rubber coated fabrics for industrial uses, has issued a new catalog featuring new fabrics and new coatings. The list shows detailed specifications, including 10 variations under premier coatings, a choice of neoprene coated fabrics, coated fiberglas, Buna-N coatings on nylon and cotton fabrics, natural rubber coatings, etc.

This catalog, called Bulletin No. 11, will be sent free on inquiry to Vulcan Proofing Co., 58th Street and First Avenue, Brooklyn 20.

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♦ Seventy-five years ago, gas processors faced the problem of H_2S removal. Then, just as they do today, they turned to Iron Sponge for most efficient purification at lowest cost.

Iron Sponge offers extremely high activity with maximum absorption. Periods between regeneration are longer while the regeneration itself is accomplished quickly and simply.

For low or high pressure purification problems, Iron Sponge is *still* the most economical solution.

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Plans Made To Meet Demands Of East Ohio Gas

The Federal Power Commission has authorized The East Ohio Gas Co. of Cleveland to contruct and operate underground natural gas storage facilities in northeastern Ohio which are expected to help meet the increasing demands now being made upon the company's system.

The construction program includes two 8-⅝ inch lines totaling 12.3 miles in length; a 940-hp compressor station, and an underground gas storage pool consisting of 13 wells and 3,500 acres of gas storage leaseholds in Columbiana County, Ohio. Estimated cost of the project is $622,700.

The storage facilities are estimated to have an ultimate capacity of 33 million cu. ft.

The FPC has received applications from The East Ohio Gas Co. and The New York State Natural Gas Corp., affiliates in the Consolidated Natural Gas Co. system, proposing to construct connecting pipe lines in Pennsylvania and Ohio which would make additional natural gas available to East Ohio during the winter months.

New York State Natural estimates that it will have available for sale to East Ohio approximately 40 million cu. ft. of gas per day during January, February and March, with peak day deliveries going as high as 87 million cu. ft.

The connection between the systems of the two companies is being proposed at this time, New York State Natural said, because the discovery of the Leidy gas pool in Clinton County, Pa., will provide substantial quantities of gas which, together with gas from other sources, will enable New York State Natural to supply gas to alleviate the pressing need of East Ohio during the winter seasons.

Estimated cost of the construction is $3,792,806 for New York State Natural and $40,940 for East Ohio.

Brooklyn Union Announces Five Promotions

Five employees of the manufacturing department of the Brooklyn Union Gas Co. have been advanced to higher positions.

John M. Beisty, formerly general superintendent at the Greenpoint Works, has been named assistant engineer of manufacturing. Allan G. Hall succeeds Mr. Beisty as general superintendent of the Greenpoint Works.

William E. Tate, who previously held the post of assistant superintendent, has been made assistant general superintendent. George H. Heiderich is the new assistant superintendent of the Greenpoint Works, and Elwin S. Larson has been appointed as a superintendent's assistant.

Personnel Shifts Announced By Koppers Company

Irvin H. Jones, Manager of the Patent Section, Research Department of Koppers Company, Inc., Pittsburgh, since 1944, became international development manager for Koppers on August 1, it was announced recently by Fred C. Foy, vice-president and manager of the company's central sales department.

Dr. W. C. Rueckel, vice-president, who has assisted in setting up the international development program of the company since formation of an international sales section last February, will return to his position as manager of export sales for the engineering and construction division.

The appointment of Dr. W. J. Monacelli, assistant manager of the patent section, research department, to the position of acting manager of that section, succeeding Mr. Jones, also was announced by Dr. G. F. D'Alelio, vice-president and manager of the research department.

American Natural Gas Service Promotes F. H. Hughes

Frank H. Hughes has been appointed director of purchases of American Natural Gas Service Co., according to an announcement by Henry Fink, President.

Mr. Hughes has assumed his duties in the company's offices in the Penobscot Building, Detroit.

American Natural Gas Service Co. furnishes engineering, accounting and other technical services to its affiliates, Michigan Consolidated Gas Co., Michigan Wisconsin Pipe Line Co., Milwaukee Gas Light Co. and the parent company, American Natural Gas Co.

Mr. Hughes has been in public utility purchasing for the past 24 years, serving at various times as director of purchases of the North American Light and Power Co., Northern Natural Gas Co., Illinois Power Co. and United Light and Railways Service Co.

Committee Organized to Study War Time Tax Regulations

The American Gas Association and the Edison Electric Institute have formed a joint subcommittee of their Taxation Accounting Committee to evaluate the factors involved in the calculation of excess profits and war taxes on public utilities during World War II.

This committee will prepare to offer any aid that may be requested by legislative or revenue authorities concerning the tax treatment of public utilities, in the event any new tax regulations result from the present international situation.

The committee is comprised of ten utility accounting and taxation specialists with H. W. Ziethen, The Peoples Gas Light & Coke Co., Chicago, and C. J. Trudeau, Wisconsin Electric Power Co., as co-chairmen.

"THE BEST

BIG METERS

WE'VE EVER USED"

A Distribution man writes: "It is very interesting to note the remarkable accuracy of your No. 4½ and No. 5 meters after passing large volumes of gas. For example, two of these meters measured 180 million cubic feet each at 10 psi pressure under severe turn-on and turn-off conditions. Upon test one of these meters was found to be ½ per cent slow and the other ½ per cent fast . . . Our repair costs for the Emco pressed steel meters in our system are considered exceedingly small in comparison to the large quantity of gas measured. They are the best big meters we have ever used."

Yes, performance-wise and dollar-wise Rockwell-Emco pressed steel meters are your best big meter buy. Ask for Bulletin No. 1033.

ROCKWELL-EMCO
Pressed Steel Meters

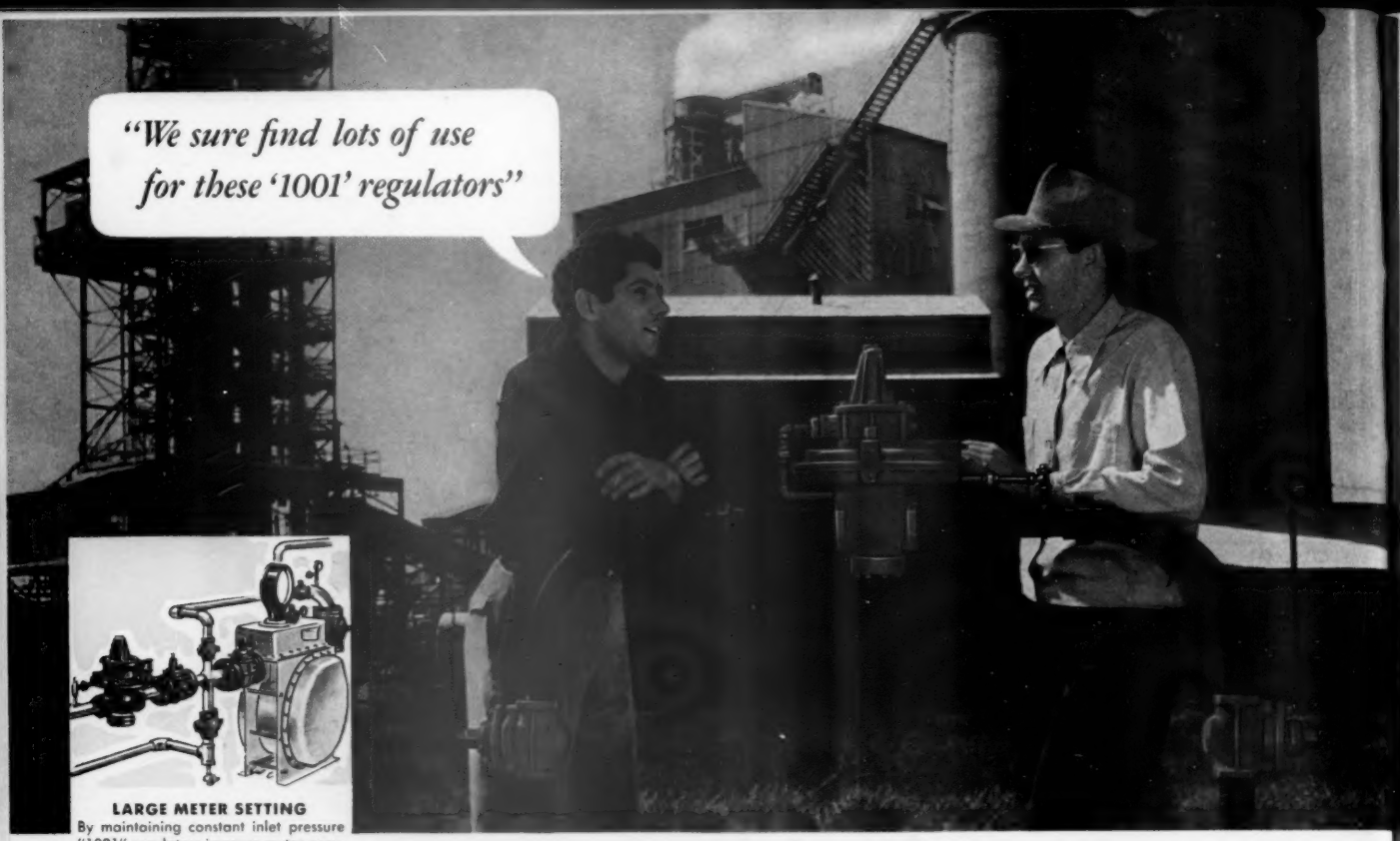
These Rockwell-Emco Gauges contribute to meter accuracy

THE EMCORECTOR

A recording gauge that gives a direct reading of metered volume corrected to contract base pressure irrespective of line pressure fluctuations. It eliminates all calculations.

COMBINED RECORD GAUGE

Provides chart pressure records from which can be calculated the metered volume corrected to any contract base pressure. Made in both meter and clock driven types.



LARGE METER SETTING
By maintaining constant inlet pressure "1001" regulators improve meter accuracy particularly where measurement is made at high or intermediate levels.

INDUSTRIAL BURNERS
High pressure burners and those requiring accurate temperature regulation (as in processing) benefit from the outlet pressure stability of "1001."

DISTRICT PRESSURE CONTROL
These regulators are frequently specified as district controls for systems operating at intermediate pressures or combined with low pressures.

1000 AND 1 APPLICATIONS FOR ROCKWELL-EMCO "1001" REGULATORS

Distribution engineers are continually finding new applications for Rockwell-Emco "1001" regulators. That's because they are general purpose controls—economicial to buy and maintain, sensitive in response and exceedingly accurate in their pressure control abilities. Now is the time to learn all about these compact, pilot loaded regulators that frequently do a better job of control than larger, more expensive specialized types. *Write for bulletin 1159.*

Pittsburgh Equitable Meter Division

ROCKWELL MANUFACTURING COMPANY
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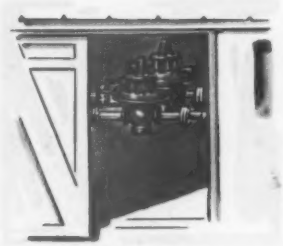
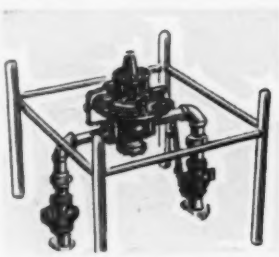
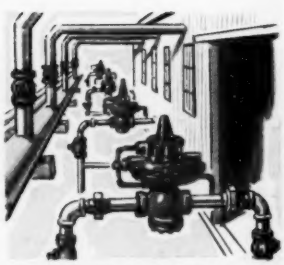


TOWN BORDER STATION
For small town border stations—those applications up to the capacity of 2-in. pipe—the "1001" regulator has no equal for adaptability and economy.



SMALL DISTRIBUTION SYSTEM
Distribution men, with years of "1001" regulator experience, find these controls are simple, rugged and adaptable to a wide range of operating conditions.



COMPRESSOR STATION
The "1001" regulator is highly popular for gas engine service due to its ability to maintain a constant pressure on the carburetor or mixing valve.

VAPORIZER UNIT
Compact design and extreme sensitivity of "1001" regulators are particularly appreciated in operation of vaporizers, large appliances, heat treat furnaces.

Meters *Regulators*

TIN ALUMINUM CAST IRON PRESSED STEEL APPLIANCE SERVICE "1001" BALANCED VALVE

There's a **ROCKWELL - EMCO METER & REGULATOR** for every use

Rockwell Names Dixon Ass't V-P Of Meter and Valve Division

L. A. Dixon, Jr.

W. F. Rockwell, Jr., President of Rockwell Manufacturing Co. has announced the appointment of L. A. Dixon, Jr., as assistant vice-president of the company's meter and valve division. He will assist in the coordination of sales and factory problems and make his headquarters at the home office in Pittsburgh. For the past two years he has been general manager of the Pittsburgh-DuBois Division of Rockwell.

Mr. Dixon has a long relationship with the meter industry, having devoted his full time to it since his graduation from Pennsylvania State College.

Mr. Dixon started in the Engineering Department of the Pittsburgh-DuBois Company and was made Executive Vice President in 1944. When Rockwell acquired that company in October 1947, he became the Assistant General Manager.

Valley Gas Pipe Line Wants To Serve Middle West

Valley Gas Pipe Line Co., Inc., a new corporation, of Houston, has asked the Federal Power Commission to authorize construction of a $144,500,000 pipe line project to carry natural gas from the Gulf Coast and off-shore fields in Louisiana and Texas to markets in Indiana, Ohio and Michigan.

The proposed system would have an initial daily delivery capacity of 330 million cu. ft. per day and the company said it may seek further authorization for an increase to 505 million cu. ft. daily.

The project would include a 1,000-mile, 30-inch line extending from Hardin County, Texas, across Louisiana, Arkansas, Missouri, Illinois, Indiana, and into southern Michigan. In addition, the company would build 500 miles of 24-inch line in Louisiana and Texas together with necessary laterals for supply and distribution.

One 24-inch line would extend northerly from Goliad County, Texas, to a connection in Hardin County with another 24-inch line. The latter line would originate in the Vermilion Bay Area of Louisiana, run 10 miles southward into the Gulf of Mexico and thence westward along the coast to the Sabine Pass Area of Texas, and northward to the connection in Hardin County.

A 13,250-hp compressor station would be located at Saratoga (Hardin County), Texas, and a station of 13,250 compressor hp would be built at Poplar Bluff, Mo. Additional stations, with a total of 70,000 compressor hp, would be installed as required.

The company said it expects ultimately to sell and deliver 150 million cu. ft. of gas per day in Indiana and Ohio, and 355 million cu. ft. daily in Michigan. Arrangements for the acquisition of natural gas reserves assuring the delivery of 330 million cu. ft. per day for 20 years have been completed, the application says, while initial contracts for the sale and delivery of the 330 million cu. ft. are assured at this time.

Bibliography Available On Industrial Research

Arthur D. Little, Inc., Cambridge 42, Massachusetts, has announced that it has prepared a selected bibliography of books and articles on "Management of Industrial Research." The bibliography is now available without charge.

Hart Heads Air Conditioning Advertising for G E

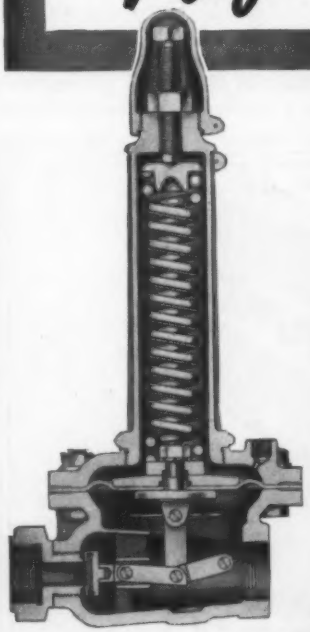
G. W. Hart has been appointed manager of advertising, sales promotion and sales training of General Electric Company's air conditioning department, it was announced recently by H. B. Donley, manager of marketing. He succeeds E. S. McKay, who has joined the staff of Robert S. Peare, vice-president in charge of the company's public relations.

Prior to his appointment, Mr. Hart was manager of market research. From 1948 to March 1949 he was assistant to the marketing manager.

IN THE HIGH PRESSURE FIELD

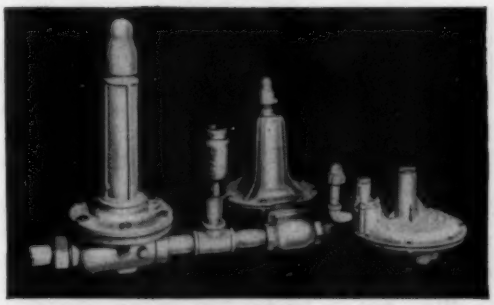
THERE IS SAFETY

IN *Reynolds...*



Accurate, Safe Control

of tremendous pressures is an ever present problem in the gas field. Reynolds field Regulator illustrated at left is one of the many high pressure regulators built by Reynolds. It is thoroughly tested and proved in service. It handles up to 1,000 pounds safely reducing same to pounds. For more than fifty-five years Reynolds has designed and built gas regulators. Safety, accurate performance, years of service—these are some of the built-in factors responsible for Reynolds enviable position in the Gas Control Field.



Reynolds Gas Regulator Co.

ANDERSON, INDIANA, U. S. A.

GAS CONTROL SINCE 1892

Cloud Is District Sales Mgr. For American Meter

A. B. Cloud

American Meter Co. has announced the appointment of Alexander B. Cloud as district sales manager of the New York territory.

Mr. Cloud graduated from the US Naval Academy in 1934 and joined American Meter in 1936. From 1936 until 1942 he was located at the Metric Metal Works, Erie, Pa., where he was engaged in production, service and sales work. He was called to active duty in 1942 and served until 1946.

Petroleum Refinery Engineering At University of Oklahoma

Effective September 1950 a new course entitled, "Petroleum Refinery Engineering" will be added to the graduate program of the School of Chemical Engineering at the University of Oklahoma.

The course will consist of a series of lectures and problems related to the design of various pieces of refinery equipment, as well as the assembly of these elements into the complete design of a process.

Grow and Hauber Get New Duties With Peoples Natural

George C. Grow has assumed the duties of chief geologist for The Peoples Natural Gas Co., Pittsburgh, and Fordyce C. Hauber has been appointed system production and reserves engineer for Consolidated Natural Gas Co.

Mr. Grow will work under the general supervision of Fenton H. Finn, Consolidated system geologist, and Mr. Hauber will be responsible for natural gas reserves and related special production problems for the entire Consolidated system.

Heydecke Retires After Fifty Years with Public Service

Franklyn Heydecke, who retired on pension July 16 after 50 years with Public Service and predecessor companies, received his half-century diamond lapel pin on July 14. The presentation was made by President George H. Blake in the latter's office in Newark. Mr. Heydecke has been comptroller of Public Service Electric and Gas Company since January 1948. Prior to that he was, for many years, general auditor for the company.

On July 12, Mr. Heydecke was the guest of 100 friends and business associates at a 50-year luncheon.

A graduate of New York University's School of Commerce, Accountants and Finance, class of 1908, Mr. Heydecke has been a member of the executive committee and board of directors, and is now President of the New Jersey Utilities Association.

Hugh G. Smith was elected President of the Canadian Gas Ass'n, at the annual meeting at Murray Bay in June. He is secretary of the Consumers' Gas Co. of Toronto.

Year-Round Air Conditioning Installed in New Homes

One of the first medium-priced housing developments in a northern area of the country to offer complete year-round air conditioning is now nearing completion in the Mount Airy section of Philadelphia.

Each of the 54 homes in the development is equipped with a General Electric packaged air conditioner and a General Electric warm-air furnace. The installations employ gas-fired furnaces.

The year-round air conditioning system provides cooling, heating, humidification and dehumidification as needed. For between-season operation, when neither heating nor cooling is required, the system brings in fresh outside filtered air.

The self-contained air conditioner and the furnace are located side by side in the basement utility room, and cool or warm air is carried to the rooms by a common ductwork system. A single high sidewall supply serves each room, with the return located low on the same wall. The change from heating to cooling and vice versa is accomplished simply by throwing a switch. A simple damper arrangement permits diversion of more cool air, if desired on extremely hot days, to the rooms actually in use.

Utility room . . . all gas.

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When in Atlantic City visit

FAMOUS FIESTA LOUNGE

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Tenn. Gas Transmisson Elects Four Vice-presidents

Four top executives of the Tennessee Gas Transmission Co. were elected vice-presidents by the board of directors on July 18, it was announced by Gardiner Symonds, President.

They are: N. W. Freeman, formerly assistant to the President.

R. L. McVey, formerly controller.

Harold Burrow, formerly manager of gas supply department.

Louis Sonnen, formerly manager of the purchasing department.

All are veteran executives with the company. Messrs. Freeman, Burrow and Sonnen joined the company during its formative stages in 1943. Mr. McVey came with the company in 1945. All have played a major role in building the company to its present position.

Mr. Freeman first joined the company as manager of the personnel department and became assistant to the President in 1947. Mr. McVey came with the company as assistant to vice-president and became controller in 1947. Mr. Burrow was first purchasing agent, then director of purchasing and in early 1949 was made manager of the gas supply department. Mr. Sonnen also began with the purchasing department and was made head of the purchasing department in early 1949.

FACE-LIFTED and Air Conditioned YEAR-ROUND

North Shore Gas Co. has remodeled its Winnetka, Illinois, store and business office and equipped it with a Servel all-year air conditioner. The building was designed to create a friendly atmosphere for customers. The sign outside consists of cast aluminum letters and characters mounted on a corrugated aluminum background. There is a secondary appliance display in the basement.

E. K. Hartzell Resigns From Cities Service

E. Keith Hartzell has resigned his position as assistant to the President, Cities Service Gas Co., in order to become the managing editor of the *Bristol Herald-Courier,* Bristol, Virginia. During his service with the Cities Service organization, Mr. Hartzell has served in numerous positions in several of the subsidiaries of Cities Service, his last being with the Cities Service Gas Co. at Wichita, Kansas, from 1945 until June 1, 1950.

Mr. Hartzell was President of the Public Utilities Advertising Association in 1940.

Available Now—

Reprints of:

Chronology of the Natural Gas Industry—by Luis Hilt

An eight-page reprint from the May issue of American Gas Journal, with a two-page table "Natural Gas Reserves, Production and Consumption, from 1906 to 1950."

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CONVENTION CALENDAR

September

8 *New Jersey Gas Association,* annual meeting, Spring Lake, N. Y.

14-15 *Mid-West Gas Association,* Gas School and Conference, Ames, Iowa.

17-20 *Controllers Institute of America,* annual meeting, Chicago, Ill.

22 *Oklahoma Utilities Association, Gas Division,* annual conference, Oklahoma City.

October

2-6 *American Gas Association,* annual meeting, Atlantic City, N. J.

2-6 *Gas Appliance Manufacturers Association Exposition of Appliances,* Atlantic City, N. J.

16-20 *National Safety Congress and Exposition of National Safety Council,* Chicago, Ill.

20-21 *American Management Association,* New York, N. Y.

23 *Independent Natural Gas Association of America,* Houston, Texas.

AGA Convention

(Continued from page 23)

Group will sponsor group meetings on materials and supplies, taxation accounting, and general accounting.

The Operating Section has arranged for a talk "How to Be Human," to be given at one of the general sessions by Wallace G. Strathern, director of training, Eastern Gas and Fuel Associates, Boston, Mass.

Sessions of the Operating Section are scheduled for Tuesday afternoon, Wednesday morning, and Thursday afternoon. The first of these sessions will include a talk on the subject of driver training by Dr. Amos E. Neyhart of Pennsylvania State College. A. B. Lauderbaugh, Manufacturers Light and Heat Co., of Pittsburgh will speak on basic corrosion principles. Chairman J. L. Coyne, Rochester Gas and Electric Corp., will report for the Motor Vehicles Committee. Chairman of the Purging Committee, G. R. King, Philadelphia Electric Co., also will make a report.

The Wednesday morning session will include the reports of Sidney E. Trouard, New Orleans Public Service, chairman of the Corrosion Committee, and F. J. Hall, Michigan Consolidated Gas Co., chairman of the Distribution Committee. The speakers at this session will include Baxter Wilson, Mississippi Power and Light Co., on management's attitude toward a corrosion control program; E. C. Brenner, Milwaukee Gas Light Co., on the use of various gases for supplementing natural gas in Milwaukee; W. R. Fraser, Michigan Consolidated Gas Co., on the conversion of a low pressure distribution system for pound pressure gas; and R. H. Bussard, Washington Gas Light Co., on work on consumer premises.

The Thursday afternoon program includes the report of the Chemical Committee by its chairman, G. V. McGurl, of the Koppers Company, and that of the Gas Production Committee by its chairman, J. P. Stephens of the Cincinnati Gas and Electric Co. Speakers for this session are expected to include W. Reed Morris of the Koppers Company on the future outlook for the coke oven industry, and Louis Shnidman of the Rochester Gas and Electric Corp., on the effect of the components of fuel gases on flame characteristics. Two papers on the important subject of plant waste disposal will be given by W. H. Hart of the Atlantic Refining Co. and Dr. W. W. Hodge of the Mellon Institute of Industrial Research.

Plans are progressing for the dealer meeting which will be held Thursday afternoon, October 5. This meeting is being sponsored by the AGA, GAMA, and the National Appliance and Radio Dealers Association.

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M. B. SKINNER EXPANDS

P. D. Merrill, vice-president, production, directs ground breaking for Skinner plant expansion.

The M. B. Skinner Co., South Bend, manufacturers of pipe repair clamps and saddles, has just broken ground for a plant addition that will increase production space by 50 per cent. This action is the result of increasing sales over the past ten years and the fast acceptance of new items that have been added to the line since the war.

Columbia Subsidiaries File Expansion Plans

Four subsidiary companies of the Columbia Gas System, Inc., have filed a joint application with the Federal Power Commission asking authorization to make additions to their natural gas transmission systems in Ohio, West Virginia, Pennsylvania and New York. Total estimated net cost of all the projects is $1,664,570.

The four subsidiaries are The Manufacturers Light and Heat Co., Cumberland and Allegheny Gas Co., Natural Gas Co. of West Virginia, and Home Gas Co., all with main offices in Pittsburgh, Pa.

Only one of the four projects, that of Home Gas Co., involves the sale of gas to a new territory. The other three companies would use the proposed facilities to provide continuous service to existing customers and to provide for normal growth.

Home Gas Co. would install a meter and regulating station in Rockland County, N. Y., for the purpose of selling gas to Rockland Gas Co., for resale in Ramapo, Tuxedo, Tuxedo Park and Sloatsburg.

Banks Elected—Wade Retires

(Continued from page 36)

agership of Southern California Gas Co. until last year, when he turned over the position of general manager to Mr. Banks.

Both Mr. Wade and Mr. Edwards have served as President of the Pacific Coast Gas Association.

Mr. Banks has been a vice-president and director of the company since 1934. He joined Southern California Gas Co. in 1922 and during the next seven years, he served in San Bernardino and in the San Joaquin Valley, first as sales supervisor and later as division manager. In 1930, he was made general superintendent of sales for the company, with headquarters in Los Angeles, and in 1934 he became vice-president in charge of sales, advertising and public relations. His election to the position of vice-president and assistant general manager took place on August 1, 1948, and a year later he was made vice-president and general manager.

High Btu Oil Gas

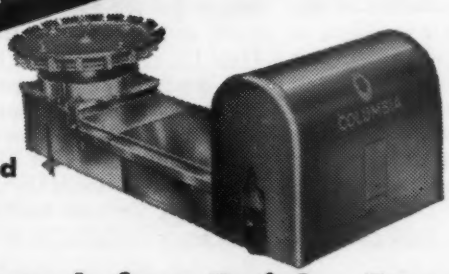
(Continued from page 20)

cent carbon, it is oil 11.97 gal., tar 2.63 gal., and a net of 9.34 gal. Thus, they are practically identical insofar as overall requirements are concerned. Cost of oil and set capacity will determine the choice of one over the other.

In Report HB-1 you will note that while the make oil above for the 13 per cent carbon oil is 11.69 gal. as against 10.67 gal. for the other, the difference can be explained by the lesser amonut of heat oil required for the 13 per cent oil and a corresponding increase in tar produced.

Assuming that companies would consider using nothing but the residual oils, careful study should be given to the type of such oil used, the technique of set op-

COLUMBIA Model "J" Conversion GAS BURNER



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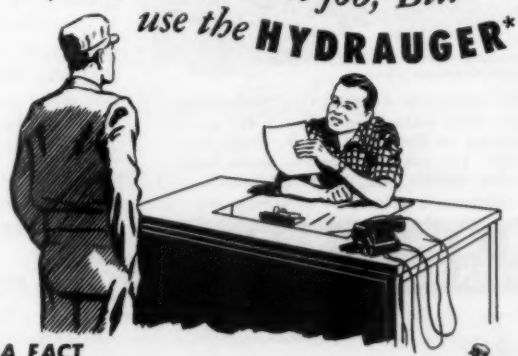

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eration and the processing or handling of the gases between the set and the distribution system.

It should be pointed out that all oils are not the same. Some produce good volumes of gas and relatively small amounts of easily handled tar. Others produce less gas but much tar. Others are good gas producers but give difficult tars and emulsions. Oils are frequently blended, which may or may not be bad, depending upon the characteristics of the original oils and how they will work together.

One of the oils most to be feared is a blend, made up of fractions having widely divergent optimum cracking points. It is then a case of accepting poor cracking efficiency or the making of stiff heavy tars and emulsions which can plug the wash box and tar separator in a short time. Oils high in the aromatic fraction should be avoided.

Oils appear to crack to certain approximate equilibrium percentages over a wide variety of types, but gases high in illuminants must be scrubbed of light oils in order to control the yellow tipping tendency—and, especially is this true if the gases are to be used for interchange with natural gas, or are to be used as base gases pending the arrival of natural gas. Cracking in an atmosphere of steam promotes the formation of light oils and illuminants. Therefore, the use of process steam except for purging purposes should be eliminated.

As mentioned briefly before, steam has little positive value in the process, since the temperatures used in the set are much too low for carbon to react with it. It absorbs heat from the set for no return and, upon expanding, increases the gas velocities, thus shortening the time of contact at cracking temperature. The process is basically one of time and temperature, so that if any extraneous factor is present, corrections must be made to either one or the other. If the percentage of hydrogen is high and must be controlled, inerts through the addition of blow run can be used for tempering.

In addition to the necessity of scrubbing for illuminant control, scrubbing protects the purification system's activity. It decreases the cost of condensate collection and gives better control of the Btu sent out. Assume that scrubbing is not done at all. There is a tendency for some of the light oils to settle out in the storage holder. And based upon known cases, the send out Btu will vary rather widely from day to day in relation to the ambient temperature of the storage holder.

If the gas is for base load purposes and is of any volume at all, light oil scrubbing with subsequent light oil recovery is a profitable adjunct. It can not only pay for the cost of a necessary process, but also give a good return for the investment through sale of the light oils.

If the case is such that oil gas may eventually be supplemented with natural gas—note that it is not indicated that natural will supplant it, since commodity and demand charges may be of such character as to preclude this—then particular study and care should be given to selecting and manufacturing the proper oil gas for alternate use of the two.

The New England companies are in much the same position as the northwest—at the end of long high cost transport lines which makes it expedient for the pipe line companies to so word and price their contracts as to approach a 100 per cent load factor—but whose own load factor is on the order, at present, of 2.5 to 1, and with perhaps worse to come. It therefore may become a question of which gas supplements the other.

Processes, equipment, oils and conversion adjustments should all be selected with the view to the use of either one or the other as circumstances demand.

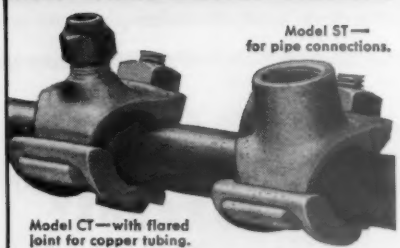
Little has been mentioned regarding the economies of oil gas except a reference to the oil results obtained at Baltimore, which might quickly be applied to any company through application of oil prices existing at the time. However, this would be only an indication and not tell the full story, so a set of comparative figures for the past April and May as made and compiled by Cambridge Gas Light Co. is given in the table.

A careful study of these will show the savings which may be expected by going to oil gas pending the arrival of natural gas. Also, how further savings can accrue on the investment by using the same equipment for load factor control and emergency gas after its arrival.

Quick easy way

TO MAKE GAS AND WATER CONNECTIONS

FOR REFRIGERATORS, LAUNDRIES, WATER-HEATERS, ETC.



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"B" TYPE METERS
DIAPHRAGMS

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Higher Court Decisions

(Continued from page 34)

that certain described real estate contiguous to the city be annexed and provided that "said proposition" be submitted to the voters of the city at the regular general election to be held on November 2.

The Iowa-Illinois Gas and Electric Co. sued the city, and its officials, to prevent and enjoin the city from carrying on the proposal to annex to the city this unplatted contiguous territory.

The higher court refused to issue the injunction, and said:

"It is only where a statute is ambiguous or of uncertain meaning that the courts are at liberty to apply rules of construction. Where a statute is plain and the meaning clear, courts are not permitted to search for its meaning beyond its express terms. We are not permitted to write into the statute words which are not there."

Also, see Iowa Public Service Co. v. Rhode, 298 N. W. 794. This higher court held that the law also is established that "legislative intention" is to be deduced from the language used, and the language must be construed according to its plain and ordinary meaning.

Morris Coupling and Clamp Increases Line

Morris pipe couplings are now available for pipe sizes up to 8" according to Morris Coupling and Clamp Co., Ellwood City, Pa. The new range of sizes is made possible by an expanded tooling program.

The company also announces that, in addition to the standard zinc coated steel line, all aluminum couplings are available in all sizes to 8". Rubber base gaskets are furnished as standard equipment, but gaskets of various types such as cork, fibre glass, and neoprene are also available.

Local Ownership

(Continued from page 30)

competitive bidding," the company reports, "and if a primarily eastern syndicate had been the successful bidder, perhaps not more than a third of the issue would have been sold in the state.

A utility which has had every incentive to promote ownership of its stocks by employees and by area residents is Cincinnati Gas & Electric Co. This company during the past few years has been harrassed constantly by the city council with respect to both rates and franchises. Says President Walter C. Beckjord: "We definitely favor increasing the number of shareholders in our local service area, particularly in the City of Cincinnati, because we believe it will be very beneficial from a public relations point of view."

As part of each of the three issues of new stock made during recent years through pre-emptive rights to stockholders, the company has sold the unsubscribed portion to shareholders and to local brokers with arrangements to use their best efforts to place as many of the shares locally as possible.

The question of the advisability of

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Gas Conversion Specialists
Conversion without Confusion
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CRUSE-KEMPER COMPANY
AMBLER, PENNA.
MORE THAN FORTY-FIVE YEARS OF SOUND
STEEL PLATE CONSTRUCTION
GAS HOLDERS PURIFIERS

having strong local ownership of utility stocks was discussed favorably at length by Charles E. Oakes, President of Pennsylvania Power & Light Co., at the recent annual convention of the Edison Electric Institute.

"We are local industries," he told his industry associates at that meeting. "All of our property, our customers and employees are located where we serve. Our customers know us as employees and neighbors and they see our property every day. Large numbers of our customers already own our preferred and common stocks. Many more will do so if given the opportunity. What better way is there than for us to look to the people where our business is conducted for a great portion of the equity money needed to provide their growing demands for our service. . . . We are of the opinion that there is more to be gained through wide distribution to investors in our service area than any advantage there might be in slightly lessened costs through competitively placing our preferred stock in large blocks with a few institutional investors."

Some idea of the substantial extent of local ownership of utility shares may be gleaned from the table on page 29. Many more companies might be added.

Familiarization Course

(Continued from page 17)

ficial to every employee—and I think should be continued. Many times you find out, too late, what benefits you can get from the company if they are needed, for instance, insurance or illness benefits. It gives you a better idea of what you can expect from the company and what they can expect from you."

"A meeting like this is of great help to every employee who has just entered the company. Many viewpoints and facts are disclosed that otherwise remain unknown."

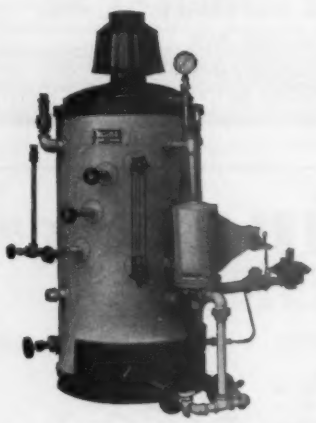
"A meeting of this type was highly desirable. It served to coordinate the various scraps of information I have gathered in the past few months and to satisfy my curiosity concerning the company. Since the company of my previous employment was one whose employee-management relations deteriorated over a period of years to open rebellion and strike, I can appreciate the desire and work on the part of the Philadelphia Electric Company to promote harmony and good-will among its employees.

"To enlighten the new and probably somewhat bewildered employee as to the organization and purpose of the company, his place in the organization and privileges, creates a feeling of greater ease and self-confidence. Therefore I believe meetings of this type contribute toward harmony, good-will and cooperation."

The Next Step

As indicated in the introduction, company familiarization for new employees is not the sole responsibility of the personnel department. A large and possibly a major share of the responsibility falls upon the supervisor whose duty it is to induct and train the new employee, provide the kind of information and establish the kind of relationships which will convince the new employee that not only has he joined a good organization but that the department and group which he has joined rate equally high as a good place to work. Plans are under way to formalize this phase of induction. The conference, it is believed, represents a productive initial step in providing information and in creating an atmosphere conducive to the development of sound attitudes and good morale among new employees.

LATTNER
GAS BOILERS
1 H.P. to 45 H.P.



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More and more homemakers will choose GAS — when you promote it strongly . . . locally

Experience has proved that sales spurt up when companies put on an aggressive local program. And today—with competition becoming keener all the time—it's more important than ever to follow-through on national advertising with strong home-town merchandising.

National advertising arouses interest, creates demand. *But* . . . all sales are local. Paving the way for them means wise use of on-the-spot advertising. It means telling people in your town where they can *see* the famous "no moving parts" refrigerator. It means reminding them how really remarkable the gas refrigerator is . . . how it stays silent, lasts longer, and is confidently backed by their own Gas Company. It means driving home hard-hitting information on prices, terms, guarantees and service.

That is the way to bring Gas Refrigeration close to home . . . the way to turn interested prospects into enthusiastic buyers.

Make sure you are getting your share of the refrigerator business with gas—in your community. Plan a definite sales program with the local "angle" —use the specially prepared Servel local ads to help you put it across. Write today for the latest portfolio of arresting, traffic-building Servel newspaper advertisements. Servel, Inc., Evansville 20, Indiana.

Servel *The GAS Refrigerator*

Adaptable!

Inches to Inches

•

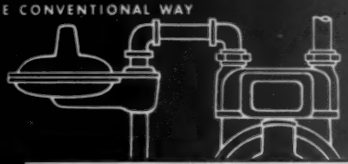
Pounds to Inches

•

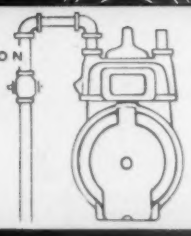
SPRAGUE COMBINATION METER and REGULATOR UNIT

Available in two sizes number 1A and number 2

THE CONVENTIONAL WAY



THE SPRAGUE COMBINATION WAY



THE SPRAGUE METER COMPA
BRIDGEPORT